PART TWO OF THE

DRINKING WATER BOARD PACKET

FOR THE MARCH 2, 2007 BOARD MEETING

DRINKING WATER BOARD
PACKET

MARCH 2, 2007

ST. GEORGE, UTAH

AGENDA

FOR THE

DRINKING WATER BOARD MEETING

OF

MARCH 2, 2007

State of Utah

Department of Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF DRINKING WATER
Kenneth H. Bousfield, P.E.
Director

Drinking Water Board
Anne Erickson, *Chair*
Myron Bateman, *Vice-Chair*
Ken Bassett
Daniel Fleming
Jay Franson, P.E.
Helen Graber, Ph.D.
Paul Hansen, P.E.
Laurie McNeill, Ph.D.
Dianne R. Nielson, Ph.D.
Petra Rust
Ron Thompson
Kenneth H. Bousfield, P.E.
Executive Secretary

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

DRINKING WATER BOARD MEETING

March 2, 2007
1:30 p.m.
Place: Dixie Convention Center, Entrada Room
1835 Convention Center Drive
St. George, Utah 84770
Ken Bousfield's Cell Phone #: (80l) 674-2557

1. Call to Order – Chairman Erickson
2. Roll Call – Ken Bousfield
3. Introductions – Chairman Erickson
4. Approval of Minutes – January 12, 2007
5. Elections of Chairman and Vice Chairman
6. Mutual Aid Agreement (WARN – U) – Dale Pierson
7. SRF/Conservation Committee Report – Vice Chairman Myron Bateman
   1) Status Report – Ken Wilde
      a) Letter from the Attorney General
      b) Legislative Amendment
      c) Financial
   2) State SRF Applications
      a) Gunlock Special Service District - Withdrawn - Ken Wilde
      b) Wellington City – Ken Wilde
      c) Circleville City – Rich Peterson
      d) Escalante City – Rich Peterson
      e) Austin Special Service District – Karin Tatum
   3) Federal SRF Applications
      a) Leeds Domestic Water Users Association – Karin Tatum

8. Authorization to Proceed with Rule Adoption – R309-100 – Body Politic Rule Adoption – Ken Wilde

9. Authorization to Proceed with Rule Adoption – R309-100, 105, 110, 115, 200, 210, 215, 220, 225, 300, 400, and 405 – Federal Rule Adoption and Reorganization - Patti Fauver

10. Reauthorization of Rule Series R309-500 and R309-700 – Ken Wilde

11. Waterwatch of Utah – Lorna Rosenstein, Director, (801) 529-0589

12. Chairman's Report – Chairman Erickson

13. Directors Report
    a) The Town of Alta and the Salt Lake County Service Area # 3 Report
    b) Report on the Rural Water Conference

14. News Articles

15. Letters

16. Next Board Meeting – TENTATIVE SCHEDULE
    Date: May 11, 2007
    Tour: Mountain Regional SSD Tour
    Address: Summit County
    Time: 9:00 a.m.
    Lunch: Working on
    Board Meeting Place: Working on
    Address: Working on
    Time: 1:00 p.m.

17. Other

18. Adjourn

In compliance with the American Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Charlene Lamph, Office of Human Resources at (801) 536-4413, TDD (801) 536-4424, at least five working days prior to the scheduled meeting.

Authorization to Proceed with Rule Adoption
R309-100

Body Politic Rule Adoption

On December 8, 2006 the Board authorized the Division to proceed with filling rule changes to R309-100, 105, 110, 115, 200, 210, 215, 220, 225, 300, 400 and 405 for the adoption of the federal Long Term 1 Enhanced Surface Water Treatment Rule (LT1), the Stage 2 Disinfection / Disinfection By-Products Rule (Stage 2), Long Term 2 Enhanced Surface Water Treatment Rule (LT2), minor corrections for the Exemption process and changes to the Division's Improvement Priority Rule. These changes to incorporate the federal rules are necessary in order for the State of Utah to retain primacy.

This discussion will focus on the rule changes necessary for adoption of the body politic.

The Division has received 5 written comments and several phone calls on this change.

The written comments are attached.

Staff Recommendation:

Staff awaits Board direction on this issue.

RECEIVED
FEB 08 2007
Drinking Water

Rural Water Association of Utah
76 Red Pine Drive • Alpine, Ut 84004 • Phone: 801-756-8828 • Fax 801-756-

Monday, February 05, 2007

To: Kenneth Bousfield, Acting Executive Secretary, Utah Drinking Water Board

From: Private Water Systems Committee - Rural Water Association of Utah

Subject: Division of Drinking Water Rule Change

Dear Ken

The Private Water System Committee for RWAU, was informed of the proposed rule change to the Utah Administrative Rule R309-100-4 subsections(f)(i) and (f)(ii) under Subsection R309-100-4(1) requiring that any new public drinking water system categorized as a community water system or a public water system serving water to multiple property owners no matter how the system is categorized shall be under the sponsorship of a body politic as defined in Section R309-110-4; and that existing privately-owned public drinking water systems which propose to expand their service to new subdivisions shall comply with Subsection R309-100-4(f)(i) before the Division will approve any plans and specifications for expanded service facilities or pipelines.

We of the Private Water Systems Committee, which the systems represent approximately 40% of the RWAU Member Systems, strongly disagree with these amendments that are being posed. We feel that the amendments are being placed to hamper the growth of these privately owned systems and they are being singled out as being non-compliers with the drinking water rules.

Our points against the rule change are as listed.

- Individual Property Rights (Developmental Rights)
- There are currently Rules already in place for proper development of new and existing public water systems, Capacity Development Rules, which address
  - Source Capacity
  - Storage Capacity
  - Distribution Capacity
  - Proper Operation and Maintenance
  - Financial Management
- Why should this new rule focus only on water systems serving residential connections and not other privately owned water systems, Transient and Non-Transient Water Systems
- The local County's, with the Division of Drinking Water should be doing the approval of new subdivision that require the development of a water system

We wonder are Privately Owned Water Systems more likely to have compliance issues over the Publicly Owned Water Systems, we say no. Most compliance issues are due to poor operation and maintenance, and we know State wide these problems exist in Cities/Towns, Districts, Camp Grounds (Transient Water Systems), Commercially Owned Water Systems (Non-Transient Water Systems) and Privately Owned Water Systems (Community Water Systems).

Sincerely

Paul Fulgham
Chairman, Private Water System Committee
Rural Water Association of Utah

SMITH | HARTVIGSEN PLLC

ATTORNEYS AT LAW

215 South State Street
Suite 650
Salt Lake City, Utah 84111

T 801.413.1600
F 801.413.1620
www.smithhartvigsen.com

February 13, 2007

Utah Department of Environmental Quality
Division of Drinking Water
Attn: Kenneth Bousfield
150 North 1950 West
Salt Lake City, Utah 84114-3085

Subject: Comments on Proposed Rule Change - Amendment of Rule R309
DAR File No. 29370

Dear Ken:

This firm represents several private water companies which provide culinary water service, such as Draper Irrigation Company, Wilkinson Cottonwood Mutual Water Company, and Hidden Hollow Water Company. We and our clients are concerned about the pending proposed rule change to Rule R309 of the Utah Administrative Code, particularly the proposed changes to R309-100-4(f)(i) and (ii). This proposed amendment would require that all new public drinking water systems classified as either a community water system or a public water system would be required to be sponsored by a "body politic." It would also require all existing systems to become sponsored by a "body politic" in order to expand service to any new subdivisions.

We believe that this proposed amendment unfairly burdens private water companies and those that making the investment to create and maintain these systems. The proposed amendment would effectively take away the developmental rights of individuals and entities that are willing to invest in a private water system in order to facilitate development activities. Under the proposal, their investments would come under the control of a body politic which could effectively prohibit their obtaining the expected return on their investments. Under this proposal, the free market system is turned over to government regulation. There are already sufficient market forces pressuring private water companies towards consolidation and conversion to public entities, such as the certified operator requirements and the ever increasing water quality regulations. To this point, the water companies have still had a choice in determining what is best for their respective circumstances. However, the new rule would take that choice away and force all companies toward the opposite of privatization. We believe that is moving in the wrong direction.

Most private water companies are already providing high quality water and service to their customers under the existing regulations. Although there are always a few exceptions to the rule, those exceptions can be, and are being, dealt with appropriately under the existing regulatory structure, which we believe is an adequate system as it now stands.

Furthermore, the proposed rule, as it is structured, applies only to the larger systems which serve residential connections. It does not apply to smallest systems or to systems providing services for non-residential services, which could include culinary service to schools, businesses, industries, etc. The smaller systems tend to be the ones that are more prone to problems. Similarly, the water quality issues apply to any system providing culinary service. Therefore, the proposed amendment is not an efficient means of addressing the type of problems this proposal appears to be targeting.

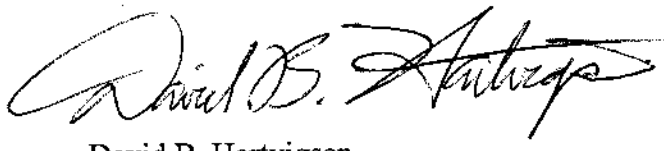
The impact of adoption of this proposed amendment would be substantial on most of our private water company clients. It would discourage existing companies from expanding, which is often needed to build a sufficient customer base to support upgrades and needed improvement – in other words, it is an obstacle to obtaining the economies of scale. It also shifts control away from those who created the systems with the anticipation of long term returns on the required investments, which are typically quite substantial. It may also make some new projects infeasible.

Given these concerns and potential impacts, we respectfully request that the amendments proposed in subsections (i) and (ii) of R309-100-4 be withdrawn from the overall proposed rule change. We would also request a public hearing on the matter if the Division is desirous of moving forward with this particular amendment.

Please send any notices or correspondence concerning this proposed rule change to me at the address on the first page. Thank you for your consideration of these comments.

Sincerely,

SMITH HARTVIGSEN, PLLC



David B. Hartvigsen

Bill Birkes - Proposed rule change to R309-110-4 and R309-100-4(1)

From: "Baxter, Paul"
To: ,
Date: 02/14/07 10:03 AM
Subject: Proposed rule change to R309-110-4 and R309-100-4(1)

February 14, 2007

To whom it may concern,

I am the drinking water system manager for the ATK Thiokol non-transient, non-community drinking water system, #02032. This system provides drinking water to manufacturing facilities serving a transient population of approximately 4,000 in our plant and the adjacent plant currently owned by Autoliv, which is located on property that was formerly a part of our plant. We are opposed to the proposed rule change in Administrative Rule R309-100-4 and R309-100-4(1) that would require a "body politic" sponsor for new and expanded systems. Besides limiting the options for land development, this rule could create insurmountable obstacles for private systems such as ours, which is required to support our plant that provides thousands of high paying jobs in the local area.

Our system is fully complaint with all state and federal regulations, which regulations we believe are fully adequate in their present form. There may be some justification for the proposed rule change, but if there is an adequate justification, we are totally unaware of it. We believe that the proposed change would place an undue burden on new and existing private systems around the state.

I also believe that the proposed rule would limit the options and place undue limitations and burdens on property owners in areas and communities such as the one where I reside (Mantua, Utah) in which the community has been either unable or unwilling to allow new water connections for the past several years.

Sincerely

Paul K. Baxter, P.E.
Drinking Water System Manager
ATK Launch Systems

From: "Rick Hafen" <rhafen@infowest.com>
To: "Bill Birkes" <bbirkes@utah.gov>
Date: 02/14/07 11:42 AM
Subject: Comments to proposed R309-100
Attachments: ldwa070213.com.pdf; ldwa070213.com.doc

Bill:

Attached are my comments to Proposed Rule R309-100. I have attached the comments in both PDF and Microsoft Word format. I am also faxing a signed copy. Please contact me with any questions.

Rick Hafen
(435) 634-0244

COMMENTS TO PROPOSED RULE AMENDMENT AND REQUEST FOR HEARING
Proposed R309-100-4(f)(I) and (ii), and R309-110-4

INTRODUCTION

Background

On January 15, 2007, the *Utah State Bulletin* published Notice of Proposed Rule Change to R309-100, R309-110 and other rules promulgated and administered by the Drinking Water Board, the "Board," through the Division of Drinking Water, the "Division." The proposed changes addressed in these comments relate to the enactment of R309-100-4(1)(f) Management and Control of Community and Certain Non-Community Public Drinking Water Systems and R309-110-4. Definitions. "Body Politic."

Purpose for the Rule Change

The stated purpose of the rule change is "to incorporate the Drinking Water Board's desire that new public drinking water systems created to serve new residential subdivisions be sponsored by a body politic or political subdivision of the state."The proposed rule gives no indication of the reasons for the Board's desire to have new residential subdivisions sponsored by a body politic. The real reason for the proposed rule change appears to be an attempt to legislate a level of service for existing privately owned public water systems and to prevent or impede the creation of new privately owned public water systems and replace them with existing or new bodies politic. A Division staff member identified three reoccurring concerns discussed by the Board associated with privately held public water systems and which would hopefully be resolved by implementation of the proposed rule. These concerns are: (1) the continuing availability of the underlying water rights as a basis to deliver the required flow and quantity of water required under the Division's rules (in one instance a developer's water rights were used as collateral for debt and then foreclosed upon leaving no water rights for the continuing operation of the public water system); (2) the fact that water users served by a privately owned public water systems that have been exempted from Public Service Commission jurisdiction are not aware of their rights to governance of the water system; and (3) the continuing fiscal viability and financial accountability of privately owned public water systems to their user. An additional reason may be the advantage that a body politic may have with respect to: (I) access to governmental grants; (ii) taxing power; and (iii) other financial mechanisms not available to privately owned public water systems for use in water system maintenance, improvements and governance issues.

Kendrick J. Hafen, on behalf of Leeds Domestic Waterusers Association, "LDWA," submits the following comments to the proposed rules.

COMMENTS

1. The Board's authority is "limited to the specific authority granted [it] under this title." § 19-1-106 (2). Under § 19-4-104(a), the Board's authority in making rules is limited to the following:

   (I) establishing standards prescribing the maximum contaminant levels in any public water system and provide for monitoring, record-keeping, and reporting of water quality related matters;

   (ii) governing design, construction, operation, and maintenance of public water

systems;
(iii) granting variances and exemptions to the requirements established under this chapter that are not less stringent than those allowed under federal law;
(iv) protecting watersheds and water sources used for public water systems; and
(v) governing capacity development in compliance with Section 1420 of the federal Safe Drinking Water Act, 42 U.S.C.A. 300f et seq.

None of these rule-making powers authorize the Board to adopt rules governing the management or control of the type of entity or assurances required to operate public drinking water systems. The board is therefore without authority to promulgate rules affecting: (a) the nature of entities authorized to deliver water to residential subdivisions; or (b) requiring sponsorship by a body politic for new, or expansions of, existing public water systems.

2. Proposed R309-100-4 is flawed in that it fails to define the meaning and extent of "sponsorship." Water companies supplying water to the general public are regulated by the Public Service Commission of Utah, the "PSC." The PSC either regulates a water company's delivery of services or exempts a water company from regulation by the PSC under R746-331. Under the proposed definition of "Body Politic" in R309-110(4), body politic "means the State or its agencies or any political subdivision of the State to include a county, city, town, improvement district, taxing district or any other governmental subdivision or public corporation of [sic] the State." Because all water companies are either regulated or exempted from regulation by the PSC, are all water companies therefore "sponsored" by the PSC, an agency of the State, and therefore outside the authority of the proposed rule? Further, "sponsorship" denotes the giving of security or a promise for another. What is Board's expected security or promise by the sponsor on behalf of a private water company? What evidence of "sponsorship" will the Board require from the body politic as evidence of sponsorship to approve a new public drinking water system or the expansion of an existing public drinking water system for a new or existing private water company? All of these questions need to be addressed in the proposed rule before it is adopted.

3. Proposed R309-100-4(f) requiring that (1) any new public drinking water system be under the sponsorship of a body politic; and (2) any existing privately owned public drinking water system proposing to expand service to new subdivisions be sponsored by a body politic, flies in the face of the Utah Legislature's declared privatization policy described in The Utah Privatization Act, § 73-10d-1 et seq., UTAH CODE ANN., the "Act." The Act declares the policy of this state "is to assure its citizens with adequate public services, including drinking water . . .at a reasonable cost." The proposed rule changes will increase the cost of drinking water to Utah citizens served by private water companies. Requiring "sponsorship" by a body politic of a new or expanding private water company vests unfettered power in the body politic to impose its regulations, whether reasonable, or arbitrary or capricious, upon water companies seeking to establish or expand public water systems. Under the proposed rule, a body politic may arbitrarily impose burdensome and unnecessary controls upon existing or new water companies seeking to

supply water to new development as a condition of "sponsorship." This power is without accountability. Many governing boards of bodies politic are not elected, they are appointed by counties, cities, or towns. Once in place, these boards remain highly static and are basically immune to public discussion or recall. This authority to dictate water service requirements for new development emasculates the powers given to county, city and town planning commissions. This power could, and will likely, result in the construction of new public water systems with new and separate water supply, storage, and distribution system when an expansion of an adjacent public water system would be more cost efficient. Thus, rather than providing water at reasonable rates, the body politic sponsored system will likely develop a new and separate water supply, storage and distribution facilities, thus increasing costs.

4. The proposed rule sought to be enacted is under the purview of the PSC. The PSC is vested with power and jurisdiction to supervise and regulate every public utility in the state. §54-1-1. "Public utility" includes every water corporation where service is performed for or the commodity delivered to the public generally. § 54-2-1(15)(a); 54-2-1(27). However, public utility does not include private irrigation companies engaged in distributing water only to their stockholders or towns, cities, counties, water conservancy districts, improvement districts, or other governmental units created or organized under any general or special law of this state. § 54-2-1(27). Adoption of the proposed rule would erode the PSC's jurisdiction over the delivery of water services because sponsorship by a body politic would remove the water company from PSC jurisdiction, or duplicate and confuse regulation of the water company with perhaps conflicting requirements imposed by the body politic and PSC. Further, the proposed rules usurp authority from the Division of Public Utilities which was established to promote the safe, healthy, economic, efficient, and reliable operation of all public utilities and their services; and provide for just reasonable, and adequate rates, charges, classifications, rules, regulations, practices and services of public utilities. § 54-4a-6(1).

5. Request for Hearing

LDWA requests a hearing at which time these issues can be discussed in more detail prior to implementation by the Division.

DATED this 14th day of February, 2007.

Kendrick J. Hafen
Attorney for Leeds Domestic Waterusers Association

JOHN S. FLITTON
ATTORNEY-AT-LAW
1840 Sun Peak Drive, Suite B-102
Park City, Utah 84098

(435) 940-0842
Facsimile: (435) 940-0852
EMAIL: jsflittonlaw@aol.com

February 14, 2007

Sent Via E-Mail to:
Attn: Bill Birkes
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF DRINKING WATER
150 North 1950 West
Salt Lake City, Utah 84116-3805

RE: Comments Regarding Rule 309-105

Dear Bill:

This letter represents formal comments by Summit Water Distribution Company ("Summit Water") on proposed Rule 309-105 and its impact to private development of water rights in the State of Utah. As drafted, the rule would prevent individuals and entities from investing in water infrastructure that is critical to economic development within the state. It is apparent that all the ramifications of the proposed rule have not been fully evaluated. The practical effect of the rule would grant local government entities (bodies politic) enhanced authority to limit zoning approvals, raises constitutional 'taking' claims, is anti-competitive under the Sherman Act, and exceeds the authority of the Division of Drinking Water under the Utah Safe Drinking Water Act. Utah Code Ann. §§ 19-4-101 through 19-4-112.

I. THE PROPOSED RULE IS CONTRARY TO PUBLIC POLICY.

It is long standing policy of the State of Utah to promote private development of the state's water resources. That policy has its genesis in the entrepreneurial spirit of the Mormon pioneers unlike riparian water law, which is predominant in the eastern states, the early Utah settlers recognized a need to convey scarce water resources to the place that is most economical. In Utah, development of real property is necessarily dependent on a firm and available water supply. Much like the early settlers, development of critical infrastructure is dependent on the work of private individuals.

Summit Water was founded in 1979 out of necessity. The tourism mecca in the Snyderville Basin was in its infancy and there were no publicly funded water resources available. Summit Water's founders tried earnestly and in vain to get Summit County to sponsor a publicly funded water system. When they were turned down by the Summit County Commission, the

only option for development was private financing. The incorporators of Summit Water enacted strict policies and regulations to ensure that there was adequate water supply and source capacity to meet these later developments. The reason for this was that the property values of the land they were developing were directly tied to water supply. Over its almost 28-year history, Summit Water has never failed to meet water quality standards or to have adequate water supply during peak daily demand periods for all of its shareholders.

If the proposed rule had been in effect in 1980, Summit Water would likely not exist. Summit County's "no growth policy" would have prevented sponsorship of a water system that relying serves approximately 6,000 residents in the Snyderville Basin. Summit Water serves a majority of the commercial development (tax base) of the Snyderville Basin along with numerous residential developments. Without private investment made by Summit Water, Summit County's tax base would be dramatically reduced. Where would Summit County and the State of Utah be today without the private investment in water resources made by the non-profit mutual water company, Summit Water?

II. THE PROPOSED RULE VIOLATES THE 'TAKINGS' CLAUSE OF THE FIFTH AMENDMENT.

Water rights have been deemed by the U.S Supreme Court to be a form of property rights subject to protection under the Fifth Amendment of the United States Constitution. Furthermore, under Utah Code Ann. §73-10d-1 it is the express policy of the State of Utah to promote private development of water rights and water resources. Those have been the rules under which individuals and entities have invested literally millions of dollars in developing source capacity, pipelines, and storage facilities with the understanding their water rights afford them legal protection. Without the assurance of rule of law, the investments that have been made would be unwarranted and ill-advised. The proposed rule would flip that system of economic reliance on its head. With the requirement of body politics sponsorship, a property owner could be denied the ability to divert and use water authorized by the Utah Division of Water Rights on a whim and therefore deprives the water right owner of a property right in which he/she has invested.

Throughout the state of Utah there is a battle between property/water right owners and local government over the appropriate use of land. Under the United States Constitution, property rights including water rights are firmly protected. It is well settled under case law that the rights of property owners cannot be impermissibly infringed upon. The Utah Legislature has enacted specific statutes that limit the authority of local government to deny planning approval. The proposed rule, however, grants an additional justification for local governments to deny the lawful and appropriate use of land and water rights will ultimately lead to claims of 'taking' under the Fifth Amendment.

For example, a land owner owning three (300) hundred acres of land with water that has been historically used and decreed by the courts to be valid, seeks to develop that land for homes and/or businesses. The land owner first seeks and obtains approval from the Utah Division of

Water Rights for a change application authorizing the requested uses. However, those lands are distant from any government sponsored water system. If the local government entity decides that they do not want to see development on those lands, they reject the request for sponsorship under the proposed rule. Under these circumstances, the rule has allowed the county to exceed the statutory planning and zoning authority and has stepped outside of the bounds of constitutional law on the issue of 'takings.'

III. THE PROPOSED RULE HARMS THE ECONOMY AND THE ULTIMATE USER OF THE WATER BY SUPPORTING ANTI-COMPETITIVE PRACTICES.

To further illustrate the impact of the proposed rule on water development and hence the economy of the state of Utah, is the very real example of the issues that Summit Water Distribution Company has faced in Summit County. Summit Water is a non-profit mutual water company owned by its shareholders. Its rates for delivery are among the lowest in the state of Utah and, as stated above, it has never failed to meet its delivery obligations both in terms of quantity and quality. As recognized by the Division of Drinking Water, Summit Water has consistently maintained a source capacity well in advance of current demand. The company is a model for private development of water resources. Despite its impeccable track record, the proposed rule would destroy its ability to continue to expand its water resources and fully use the rights for which its shareholders have invested millions of dollars.

For at least the past seven (7) years, Summit Water has fought attempts by Summit County to "run it out of business". First, in 2000, Summit County adopted its Concurrency Ordinance that limited the amount of water that Summit Water could sell to new shareholders. Summit County's concurrency rating dated July 13, 2000, approved Summit Water to provide for 50 new connections. In response to the inappropriate rating, Summit Water asked the Division of Drinking Water to review its concurrency rating. In September, 2000, the Division of Drinking Water re-rated all of Summit Water's sources and came up with a rating of 1639 gallons per minute of excess capacity. Summit Water fought the county rating, based in part on Drinking Water's analysis, for more than a year. In the mean time, Summit County attempted to condemn Summit Water and all of its resources and in the end, Summit Water was forced to file a lawsuit challenging the county's actions both on a constitutional basis in depriving them of the their water resources and on anti-trust claims.

Early in the lawsuit, the court ruled in favor of Summit Water on the source capacity rating claims and the anti-trust claims are still pending. However, a portion of the anti-trust claims have been before the Utah Supreme Court, which ruled unanimously in favor of Summit Water Distribution Company and in the decision, the court noticed serious concerns about the behavior of the county and its attempt to run Summit Water out of the water market. A copy of the Supreme Court Opinion is attached hereto as Exhibit "A".

In many areas of Utah, private investment has established water systems to serve the needs of citizens and property owners. In the case of the Snyderville Basin, Summit County

decided in early 2000, to enter the water market and provide water service to those interested in serving their properties. Competition benefits all of the citizens and consumers in the state of Utah. When there is competition, prices are reduced and the supplying entities find more efficient means to serve the public. The effect of the proposed rule would be to supplant competition by giving local government entities the ability to deny expansion of service to new areas. That control by a government entity would be contrary to the state and federal anti-trust laws and would only harm the public.

IV. THE PROPOSED RULE IS OUTSIDE OF THE JURISDICTION OF THE DIVISION OF DRINKING WATER.

The Division of Drinking Water jurisdiction is based on the Utah Safe Drinking Water, which is a statute that implements and mandates under the Safe Drinking Water Act. The sole purpose of the Division of Drinking Water is to ensure a safe and reliable drinking water supply. The proposed rule impermissibly delegates that responsibility to local government, which in some instances has interest completely contrary to the purpose behind the Safe Drinking Water Act. The Division of Drinking Water's primary concern is with quality and quantity of water supply. The Division already has rules relating to expansion of water systems and source capacity. Instead of delegating authority to local government units that have neither the expertise or the vision of the Division, Drinking Water should enhance its monitoring and reporting requirements under the rules already in place. If any amendments are to be made, they should be made to source capacity regulation and require that before approval is granted for development or expansion of existing water systems the private or public water entity provide evidence that it has existing source capacity, water rights, distribution capacity, and storage to meet the proposed needs. That is a much direct approach to the problem that has plagued some private water entities (and public entities are not exempt from these same problems) and avoids the legal and constitutional issues invoked by the proposed rule.

CONCLUSION

As an entity Summit Water has always been grateful of the important role that the Division of Drinking Water plays. The Division has given invaluable advice on many projects undertaken by Summit Water and its shareholders and the general public have benefited greatly from the expertise offered by the Division. We ask that you seriously consider the implications of this proposed rule and further ask and reserve the right to submit additional information in furtherance of this comment prior to the decision of the agency.

Very truly yours,

John S. Flitton
Attorney for Summit Water

2005 UT 73

1312.969
FILE
11/4/05
8p copy

This opinion is subject to revision before final publication in the Pacific Reporter.

IN THE SUPREME COURT OF THE STATE OF UTAH

---ooOoo---

Summit Water Distribution Company, a Utah non-profit corporation; et al.,
Plaintiffs and Appellants,

v.

Summit County; Summit County Commission; Mountain Regional Water Special Service District, a body politic of the State of Utah; Patrick D. Cone, Shauna L. Kerr, Eric D. Schifferli, County Commissioners; Douglas Evans, Employee and President of Mountain Regional Water Special Service District; Montgomery Watson Harza, a California corporation and its employee and agent, William Todd Jarvis, an individual; and John Does 1-10,
Defendants and Appellees.

No. 20040033

F I L E D

November 4, 2005

Third District, Silver Summit
The Honorable Robert K. Hilder
No. 010500359

Attorneys: Robert S. Campbell, Scott M. Lilja, Clark K. Taylor, Jennifer Anderson, John F. Flynn, Salt Lake City, for appellants
Jody K. Burnett, George A. Hunt, Robert C. Keller, Michael D. Zimmerman, Kimberly Neville, Salt Lake City, David L. Thomas, Coalville, for appellees
Mark L. Shurtleff, Att'y Gen., Annina M. Mitchell, R. Wayne Klein, Asst. Att'ys Gen., for Attorney General amicus
Mark K. Buchi, Greggory J. Savage, Richard D. Flint, Salt Lake City, for Intermountain Power Agency amicus

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DURHAM, Chief Justice:

¶1 The appellants brought suit against Summit County, a county-created water service district, and related parties, alleging antitrust violations under section 76-10-914 of the Utah Antitrust Act and Article XII, Section 20 of the Utah Constitution. The district court dismissed these claims on the basis that the appellees were exempt from the Antitrust Act under Utah Code section 76-10-915(1)(f) and that the constitutional antitrust provision is not self-executing. The appellants challenge the district court's analysis of both issues on appeal. Because we hold that the appellees' alleged anticompetitive activities do not qualify as acts of a "municipality" that are "authorized or directed by state law" under section 76-10-915(1)(f), and that the appellees are therefore not entitled to the statutory exemption, we do not reach the issue concerning the interpretation of Article XII, Section 20.

BACKGROUND

¶2 When reviewing a district court's grant of a motion to dismiss, "we accept the factual allegations in the complaint as true and interpret those facts and all reasonable inferences drawn therefrom" in the light most favorable to the plaintiff as the nonmoving party. Russell Packard Dev., Inc. v. Carson, 2005 UT 14, ¶ 3, 108 P.3d 741. We recite the facts of this case accordingly.

¶3 Appellant Summit Water Distribution Company (Summit Water) is a private nonprofit corporation that distributes culinary water for commercial and residential use to its shareholders within the unincorporated portion of the Snyderville Basin in Summit County. In January 2000, Summit Water was the leading competitor among eleven water companies that operated in the Snyderville Basin. In February 2000, Summit County (the County) adopted an ordinance renaming an existing special service district as the Mountain Regional Water Special Service District (Mountain Regional), and naming the County's Board of County Commissioners as Mountain Regional's governing board. The goal of the resolution was to establish Mountain Regional as a Snyderville Basin-wide water service district. At that time, Mountain Regional had 5.7% of the market in Snyderville Basin while Summit Water had 34%. Shortly afterwards, Mountain Regional hired William Todd Jarvis--an employee of Montgomery Watson Harza, a California corporation--to provide water engineering services on an independent contractor basis. At around the same time, the County also hired Jarvis to perform water concurrency ratings of culinary water companies. These ratings purported to measure a water company's capacity to supply

water to county residents. The County also passed new concurrency ordinances that required developers seeking building permits or planning and zoning approvals to prove they had obtained a commitment from a water company with a sufficient concurrency rating to provide water to their developments.[1] According to Summit Water, the County used the arrangement with Jarvis, in conjunction with the new concurrency ordinances, to ensure that Mountain Regional would have a competitive advantage in seeking new water connections.

¶4 Summit Water also faced a tax assessment increase, from $5000 to nearly $60,000, and the County Commission denied its appeal from that assessment. Summit Water was also forced to engage in an extended dispute with Jarvis over its concurrency rating while Mountain Regional faced no such difficulties. Meanwhile, Mountain Regional also sought, ultimately unsuccessfully, to acquire Summit Water's water infrastructure through eminent domain proceedings. As of September 2001, Mountain Regional had acquired all but three of the water companies operating in the Snyderville Basin.

¶5 In September 2001, Summit Water and a number of its shareholders (collectively, Summit Water appellants) brought suit against the County, the County Commission, Mountain Regional, Montgomery Watson Harza, and a number of their officers and employees (collectively, County appellees), alleging that these entities and individuals had conspired in restraint of trade and in an attempt "to monopolize the culinary water product market in the Snyderville Basin geographic market." As subsequently amended in March 2002, the complaint specifically alleged that the County appellees had "conspired, agreed, and combined to unlawfully tie the sale, distribution and delivery of [Mountain Regional] water to [the grant of] building permits and planning approvals, fix prices, [engage in] other restraints of trade and impair competition," and had engaged in "illegal conspiracies, combinations and arrangements by anti-competitive conduct" in order to gain a monopoly over culinary water distribution in the

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[1] A temporary concurrency ordinance, ordinance 385, adopted on May 15, 2000, was soon replaced with a permanent ordinance, ordinance 400, which was then replaced with ordinance 415, which imposed similar requirements. Theoretically, a concurrency law is intended to require "a developer applying for a building permit [to] show the local governing body that the demands of the proposed development will not exceed the maximum capacity of public facilities." Adam Strachan, Note, Concurrency Laws: Water as a Land-Use Regulation, 21 J. Land Res. & Envtl. L. 435, 435 (2001).

Snyderville Basin, all in violation of both the Utah Antitrust Act, Utah Code Ann. §§ 76-10-911 to -926 (2003), and Article XII, Section 20 of the Utah Constitution.[2] For these alleged antitrust violations, the Summit Water appellants sought injunctive relief against all County appellees and compensatory and treble damages against Montgomery Watson and Jarvis.

¶6 The County appellees filed a rule 12 motion to dismiss. The district court denied this motion in relevant part in an order issued March 4, 2002, and this court denied the appellees' petition for interlocutory appeal. The district court based its denial on its conclusions that Article I, Section 26 of the Utah Constitution was a self-executing provision, that the state action immunity doctrine enunciated in Parker v. Brown, 317 U.S. 341 (1943), did not apply to actions under state antitrust laws, and that Utah Code section 76-10-915(1)(f), which exempts "municipalities" from the state antitrust act, did not apply here because "[n]either a county nor its special service districts are municipalities."

¶7 After discovery was underway, the County appellees, in January 2003, filed a motion to reconsider and to dismiss, which the district court construed as a motion to dismiss under rule 12(b)(6) of the Utah Rules of Civil Procedure. The district court issued an order on May 27, 2002, in which it reevaluated its prior legal conclusions in light of the constitutional and

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[2] The complaint also alleged violations of Article I, Sections 7 and 24 of the Utah Constitution and the Due Process and Equal Protection Clauses of the United States Constitution. The district court granted the Summit Water appellants' motion for partial summary judgment on their due process claims in May 2002. In so doing, the court declared unconstitutional county ordinances 400 and 415, which had imposed requirements on developers to form agreements with water companies having sufficient water concurrency ratings. The court reasoned that an appearance of unfairness arose from the facts that the ordinances designated the Board of County Commissioners--also Mountain Regional's governing board--as the body hearing appeals of water concurrency ratings, and that Jarvis was the County's concurrency officer as well as a Mountain Regional employee. The district court's May 2002 order is not before us on appeal. According to the County appellees, the County has since revised its ordinance to designate a state district engineer as the concurrency officer and to remove the county commission from the appeal process. Summit Water's challenge to its concurrency rating under the new ordinance is on appeal in a separate action, Summit Water v. Mountain Regional, No. 20040091-CA.

legislative historical evidence newly submitted by the County appellees. Based on its review of those materials, the district court concluded that Article XII, Section 20 was not, in fact, self-executing but was meant rather as a "strong policy statement to guide future legislative action" so as to "guard against . . . dilut[ion] or eliminat[ion] [of] the Antitrust Act in a changed political climate." The court therefore dismissed the Summit Water appellants' claims based on Article XII, Section 20.

¶8 The court then reconsidered its conclusion that counties and special service districts were not included within the "municipality" exemption contained in Utah Code section 76-10-915. While confirming that by its plain meaning the term "municipality" referred only to a city, the court determined that the legislative intent behind the municipality exemption could not be discerned based on plain meaning alone when the legislative history submitted by the County appellees cast "'doubt or uncertainty' . . . [on] the scope of the otherwise unambiguous term 'municipality.'" Reviewing the debate on the floor of the Utah Senate regarding the insertion of the municipality exemption into the Antitrust Act, the court considered significant the statement of Senator Thorpe Waddingham, who supported his floor amendment introducing the exemption by referring explicitly to the then-recently-decided United States Supreme Court case, City of Lafayette v. Louisiana Power & Light Co., 435 U.S. 389 (1978).[3]

¶9 Based on this history, the court concluded that the term "municipality," as used in the Act, "must include all units of local government within its rubric." The court then gave the

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[3] As quoted by the district court, Senator Waddingham stated that

> [o]ne of the reasons is the legislation we passed two years ago dealing with [the Intermountain Power Project]. And a recent federal case, that I have not read, but which has been called to my attention, that in some cases makes municipalities comply with certain sections of the federal antitrust legislation. This--one of the purposes, which I hope that this particular amendment would accomplish was to remove any question as to whether or not its' [sic] a[t] variance with the Interlocal Cooperation Act that we passed two years ago.

Floor Debate, 43rd Utah Leg., Gen. Sess., Feb. 5, 1979 (statement of Sen. Waddingham).

Summit Water appellants twenty days to further amend their complaint by "in good faith identify[ing] anti-competitive activities on the part of any one of the foregoing defendants that were not 'authorized or directed by state law,'" which under Utah Code section 76-10-915(1)(f) would exclude the County appellees from the scope of the municipality exemption. The court directed that, failing such amendment, the Summit Water appellants' statutory claims under the Antitrust Act be dismissed as well.

¶10 The Summit Water appellants then filed a motion for reconsideration, arguing that the district court erred in its legal analysis of the foregoing issues and in placing on the appellants the burden of pleading that the County appellees' actions were not authorized or directed by state law. In a January 5, 2004 order, the district court denied this motion, clarifying its conclusion that "for an activity to satisfy the 'authorized or directed' requirement in section 76-10-915(1)(f) of the Utah Code it is necessary only that a political subdivision act pursuant to general state statutes." The court determined that because the Summit Water appellants had failed to "allege conduct that is not described in section 76-10-915(1)(f)," they had failed to state a claim under the Antitrust Act. The court then dismissed all remaining claims of the Summit Water appellants.

¶11 The Summit Water appellants appealed the district court's final ruling, and the appeal was transferred to this court pursuant to Utah Rule of Appellate Procedure 43. This court has jurisdiction pursuant to Utah Code section 78-2-2(3)(b) (2002).

STANDARD OF REVIEW

¶12 The district court's determination that a plaintiff's complaint "fail[ed] to state a claim upon which relief can be granted," leading the court to grant the defendant's motion to dismiss under rule 12(b)(6) of the Utah Rules of Civil Procedure, is a legal conclusion that we review for correctness. Foutz v. City of S. Jordan, 2004 UT 75, ¶ 8, 100 P.3d 1171. Here, specifically, we review for correctness the district court's interpretation of Utah Code section 76-10-915, id.

ANALYSIS

¶13 The Summit Water appellants argue that (1) the district court erred in dismissing their claims under the Utah Antitrust Act, Utah Code Ann. §§ 76-10-911 to -926 (2003), because the "municipality" exemption in Utah Code section 76-10-915(1)(f)

exempts only cities from the provisions of the Act and therefore would not exempt any of the County appellees; and because the further requirement under that section that the appellees' activities be "authorized or directed by state law" also does not apply; (2) the district court erred in requiring the Summit Water appellants to plead specific conduct by the County appellees that was not "authorized or directed by state law" because the municipality exemption is an affirmative defense to an Antitrust Act claim; and (3) the district court erred in dismissing their constitutional claims because Article XII, Section 20 is an enforceable, self-executing provision. The Summit Water appellants concede that if we decide in their favor on their statutory claims, we need not address their constitutional arguments. The County appellees disagree, suggesting that we must in any case resolve the Summit Water appellants' "conten[tion] that Article XII, Section 20 trumps all the liability and damage limitations in the 1979 Act." We first examine the statutory issues.

I. THE "MUNICIPALITY" EXEMPTION TO THE UTAH ANTITRUST ACT

¶14 Utah Code section 76-10-914 defines illegal anticompetitive activities for purposes of the Utah Antitrust Act:

> (1) Every contract, combination in the form of trust or otherwise, or conspiracy in restraint of trade or commerce is declared to be illegal.
>
> (2) It shall be unlawful for any person to monopolize, or attempt to monopolize, or combine or conspire with any other person or persons to monopolize, any part of trade or commerce.

Utah Code Ann. § 76-10-914 (2003). Section 76-10-915 exempts from this definition "the activities of a municipality to the extent authorized or directed by state law." Id. § 76-10-915(1)(f). Thus, in order for a party's activities to be exempt under section 76-10-915(1)(f) from an antitrust claim, the party must be a "municipality" and its activities must have been "authorized or directed by state law." Id. As described above, the district court held that both of these requirements were met in the case of the County appellees. The Summit Water appellants challenge its conclusion on both counts. We address each of the exemption's two requirements in turn.

A. Whether the County Appellees Are "Municipalities" Under Utah Code Section 76-10-915(1)(f)

¶15 The Summit Water appellants argue that the district court's interpretation of the word "municipality" in section 76-10-915(1)(f) to include a county, a special service district, and a private California corporation is contrary to settled principles of statutory construction, which require reliance on a word's plain meaning unless there is ambiguity. They contend that the term plainly refers to municipal corporations only--in other words, cities and towns--and that such an interpretation is in accord with a general mandate to interpret exemptions from antitrust laws narrowly.

¶16 The County appellees respond that the term "municipality" is ambiguous on its face when considered in light of conflicting definitions of the term in other statutory enactments. Furthermore, in their view, the context in which the municipality exemption was added to the Antitrust Act, together with the Antitrust Act's direction in section 76-10-926 to refer to federal law when interpreting the Act, indicates an intent by the legislature to include all units of local government within the exemption. They further contend that a narrow interpretation of the term would lead to conflict between the Antitrust Act and the Interlocal Cooperation Act, Utah Code Ann. §§ 11-13-101 to -314 (2003 & Supp. 2004), insofar as the latter authorizes the creation and continuing existence of the Intermountain Power Agency (IPA), an entity formed through the cooperation of twenty-three Utah cities and towns for the purpose of constructing and operating the Intermountain Power Project (IPP).

¶17 It is well settled in this court that our goal when interpreting a statute "is to give effect to the legislative intent, as evidenced by the [statute's] plain language, in light of the purpose the statute was meant to achieve." Foutz v. City of S. Jordan, 2004 UT 75, ¶ 11, 100 P.3d 1171 (internal quotation omitted). When evaluating the plain language of a particular statutory provision, we interpret it "in harmony with other statutes in the same chapter and related chapters." Mountain Ranch Estates v. Utah State Tax Comm'n, 2004 UT 86, ¶ 11, 100 P.3d 1206 (internal quotation omitted). However, "[i]f we find ambiguity in the statute's language, we look to legislative history and other policy considerations for guidance." ExxonMobil Corp. v. Utah State Tax Comm'n, 2003 UT 53, ¶ 14, 86 P.3d 706.

¶18 Here, the parties' dispute over the interpretation of the term "municipality" in section 76-10-915(1)(f) implicates the broader question of how ambiguity in a statute's language is to

be identified. As indicated above, the district court originally determined that the word "municipality" unambiguously referred only to cities and towns. In its May 27, 2002 order, the court repeated that, in the absence of the legislative history materials submitted by the County appellees, it would continue to adhere to that conclusion. Its ultimate decision to the contrary was entirely based on the additional materials submitted that, in the district court's view, indicated a legislative intent that was not apparent on the face of the statute itself.

¶19 We first consider whether we agree with the district court that the term "municipality," on its face, unambiguously refers only to cities and towns. The district court concluded that "[n]owhere has this court been able to find a definition or use of the term 'municipality' in Utah statute or constitution that, from its plain meaning, one could read as anything other than a city. Or, conversely, that one could stretch to embrace a county or its special service district." Based on our examination of the Utah Code and Constitution, there is no question that the word "municipality" is used almost exclusively to refer to municipal corporations--cities and towns. It is true, as the County appellees point out, that the former Utah Municipal Bond Act explicitly defined "municipality" to "include[] cities, towns, counties, school districts, public transit districts, and improvement districts . . ., special service districts . . ., metropolitan water districts . . ., irrigation districts . . ., water conservancy districts . . ., and regional service areas." Utah Code Ann. § 11-14-1(1) (2003) (repealed 2005). The provision clarified that that definition applied only "for the purpose of th[e] [Municipal Bond Act]." Id. The County appellees urge us to consider this definition as sufficient indication that the word "municipality" is ambiguous on its face. However, the fact that the legislature in 2005 saw fit, when amending the Act, to replace the term "municipality" with the term "local political subdivision," see ch. 105, 2005 Utah Laws § 9 (codified at Utah Code Ann. § 11-14-102(3)), may suggest the legislature's own acknowledgment that the former broad definition of "municipality" was not in accord with the term's generally accepted meaning.

¶20 The only other instance in which a Utah Code provision defines the term "municipality" to include "any county . . . or political subdivision of this state" is in section 72-10-301(4) of the Aeronautics Act, Utah Code Ann. §§ 72-10-101 to -504 (2001 & Supp. 2004). A review of the Aeronautics Act in its entirety suggests that this definition was inserted only to simplify the later definition of "public agency" in the same provision, see id. § 72-10-301(6) (including "municipalities" in the definition of "public agency"), for, despite the inclusion of counties in

that definition of municipality, other provisions in the same part of the chapter list both counties and municipalities in a manner that suggests they are separate entities, see id. §§ 72-10-303, -304.

¶21 If our review were restricted to the occurrences of the word "municipality" in the Utah Code and Constitution, we would be inclined to agree with the district court that the term on its face unambiguously refers only to municipal corporations. We do not end our analysis here, however, because, as the County appellees point out, the Antitrust Act expressly provides that "[t]he Legislature intends that the courts, in construing this act, will be guided by interpretations given by the federal courts to comparable federal antitrust statutes and by other state courts to comparable state antitrust statutes." Id. § 76-10-926. Based on this direction, we must examine antitrust law as a whole in order to determine whether the term "municipality" means something other than a municipal corporation when used in the antitrust context.

¶22 The federal antitrust law, the Sherman Act, exempts "local governments" from damage and attorney's fee penalties for federal antitrust violations. 15 U.S.C. § 35(a). The Act defines "local government" as including "a city, county, parish, town, township, village, or any other general function governmental unit established by State law," id. § 34(1)(A), as well as "a school district, sanitary district, or any other special function governmental unit established by State law in one or more States," id. § 34(1)(B). The Sherman Act thus uses the term "local government" to mean what the County appellees argue the term "municipality" means in the Utah statute. These provisions therefore do not support the County appellees' argument. Congress, however, added these provisions to the Sherman Act in 1984, Local Government Antitrust Act of 1984, Pub. L. No. 98-544, 98 Stat. 2750 (1984) (codified at 15 U.S.C. §§ 34-36), and the County appellees argue that Congress made this amendment in response to the United States Supreme Court's interpretation of the Sherman Act in a line of cases that served to limit the immunity of local governments from federal antitrust liability. We therefore examine these cases in order to determine whether they support the County appellees' proposed interpretation of the word "municipality."

¶23 We agree that the United States Supreme Court has interpreted the Sherman Act, prior to its 1984 amendment, as applying on its face to all local governmental entities. City of Lafayette v. La. Power & Light Co., 435 U.S. 389, 396-98 (1978) (recognizing that the term "person" in the Sherman Act included all entities, whether public or private, that "engaged in

business whose activities might restrain or monopolize commercial intercourse among the states" and thus included both states and cities (internal quotation omitted)). In reaching this interpretation, the Court emphasized the strong federal policy in favor of a "regime of competition," such that "the antitrust laws will not be displaced unless [they] . . . are plainly repugnant" to a "regulatory regime over an area of commercial activity." Id. at 398. The Court then indicated that implied exclusions from the Act were disfavored. Id. at 399. Reasoning that local governments serve parochial rather than national interests, the Court then concluded that

> [w]hen these bodies act as owners and providers of services, they are fully capable of aggrandizing other economic units with which they interrelate, with the potential of serious distortion of the rational and efficient allocation of resources, and the efficiency of free markets which the regime of competition embodied in the antitrust laws is thought to engender.

Id. at 408.

¶24 Unlike local governments, however, states themselves are coequal sovereigns with the federal government. Id. at 411-13. On that basis, the Court has interpreted the Sherman Act as implicitly excluding states from its application. Id. at 400 (citing Parker v. Brown, 317 U.S. 341, 351 (1943)). In City of Lafayette, a plurality of the Court further recognized that a local government falls within the Parker exemption when it acts as an agent of the state, "pursuant to state policy to displace competition with regulation or monopoly public service." Id. at 413 (plurality). The standard set forth by the City of Lafayette plurality was subsequently adopted by the Court. Cmty. Communications Co. v. City of Boulder, 455 U.S. 40, 51 (1982). Later cases have adhered to this general principle. See Fed. Trade Comm'n v. Ticor Title Ins. Co., 504 U.S. 621, 636-37 (1992); City of Columbia v. Omni Outdoor Adver., Inc., 499 U.S. 365, 372-73 (1991); Town of Hallie v. City of Eau Claire, 471 U.S. 34, 45 (1985).

¶25 We agree with the County appellees that this line of cases provides interpretative guidance in this context, but we disagree concerning its import. We are unpersuaded that the United States Supreme Court's use of the specific term "municipality" in some instances where the enunciated principles applied equally to other units of local government indicates that the term is ambiguous or has a different meaning in the antitrust

context, particularly where the entities at issue in the cases reviewed by the Court were in fact cities, as indicated in the case names above. Far from establishing that antitrust law in general uses the word "municipality" broadly, the County appellees have failed to point to a single instance where a court referred to a specific unit of local government as a "municipality" unless it was in fact a city or a town.

¶26 Moreover, we believe that the mandate in our Antitrust Act that we be guided by other courts' interpretations requires us to rely on the principles underlying those interpretations, rather than on the courts' particular word choice. When we examine the issue before us in that light, it becomes clear that the County appellees are asking us to engage in rather curious logic. They propose that, because the Court in the City of Lafayette line of cases held that the Sherman Act applies to all local governmental entities, unless they are acting as agents of the state, our Legislature must have intended to exempt all local governmental entities when they added the municipality exemption to Utah's Antitrust Act. Further, the County appellees repeat the argument, made before the district court, that the municipality exemption's purpose was to avoid incorporating the Court's decision in City of Lafayette into Utah antitrust law. Thus, according to the County appellees, we must follow the mandate that we rely on federal caselaw when interpreting the term "municipality" even as we recognize that the Legislature intended to circumvent the very federal caselaw that we are urged to follow. We decline to engage in such a tortured analysis.

¶27 The only remaining factor militating against the conclusion that the term "municipality" unambiguously refers only to municipal corporations is Senator Waddingham's statement in the floor debates, indicating his concern, when proposing the municipality exemption, about the impact of the City of Lafayette decision on the IPP. The extent to which an individual statement by a legislator is a reliable indicator of legislative intent has frequently been questioned. E.g., Wood v. Univ. of Utah Med. Ctr., 2002 UT 134, ¶ 19, 67 P.3d 436 ("Legislators may decide that a statute should be passed for myriad, often even different, reasons . . . ."). Moreover, it is far from clear to us that legislative history should be relevant when making the initial determination of whether a statutory provision is ambiguous on its face. See Berube v. Fashion Ctr., 771 P.2d 1033, 1038 (Utah 1989) (agreeing that the statute at issue "is clear on its face and should be applied accordingly, regardless of any specific intent formed by a particular legislator"). At the same time, because our primary goal is to interpret statutes in accord with legislative intent, we might hesitate to disregard entirely such an indication of intent where it was clear, even if a provision

appears to be unambiguous.[4] We do not believe Senator Waddingham's statement qualifies as such a clear indication of intent, however. The statement indicates that Senator Waddingham had not read City of Lafayette, and though the Senator specifically mentions the IPP, he does not indicate that he considers the IPP itself, or its owner, the IPA, to be a "municipality" that would be subject to antitrust legislation in the absence of the proposed exemption. Rather, Senator Waddingham, in stating that the exemption's purpose is "to cause actions taken by municipalities . . . to be on the same card as activities conducted by utilities," uses the term "municipalities" himself, making it difficult to conclude that he accorded the word a meaning other than the generally accepted definition of "municipal corporation."

¶28 Thus, as the Summit Water appellants suggest, Senator Waddingham's language is simply too vague to draw specific conclusions on these matters from his statements alone. It seems that, in order to accord Senator Waddingham's statement the significance that the County appellees suggest it deserves, we would have to engage in a full analysis of whether the IPA and IPP are otherwise subject to Utah's Antitrust Act and, if so, whether the legislature intended these entities to be free to engage in anticompetitive activities. Although the IPA, in its role as amicus in the present case, argues that both of these questions must be answered in the affirmative, and indeed that the municipality exemption was constructed with it specifically in mind, we are unwilling to undertake such a review when the IPA's status and activities are not actually at issue in the case before us.

¶29 Moreover, we believe the district court erred in according Senator Waddingham's statement such weight without considering the proper import of other interpretative principles in the antitrust context. We adhere to the fundamental principle underlying the Court's decision in City of Lafayette--that antitrust laws must be interpreted in light of the strong public policy disfavoring anticompetitive practices. City of Lafayette, 435 U.S. at 398. Indeed, our deference to this policy must be particularly strong in light of Article XII, Section 20 of our

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[4] In one treatise author's opinion, "[b]ecause issues concerning what a statute means or what a legislature intended are essentially issues of fact, even though they are decided by the judge and not by a jury, a court should never exclude relevant and probative evidence from consideration." 2A Norman J. Singer, Statutes and Statutory Construction § 45:02, at 14-15 (6th ed. 2000).

state constitution as well as the Legislature's explicit finding, set forth in the Antitrust Act itself, that

> competition is fundamental to the free market system and that the unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress, while at the same time providing an environment conducive to the preservation of our democratic, political and social institutions.

Utah Code Ann. § 76-10-912. Based on this policy,[5] we have previously indicated that provisions of our Antitrust Act must be strictly construed in favor of competition and that, therefore, "exemptions [from the Act] should be construed narrowly." Evans v. State, 963 P.2d 177, 185 (Utah 1998); see also Group Life & Health Ins. Co. v. Royal Drug Co., 440 U.S. 205, 231 (1979) ("It is well settled that exemptions from the antitrust laws are to be narrowly construed. This doctrine . . . applies with equal force to express statutory exemptions."). Thus, even if we were to conclude that the term "municipality" in section 76-10-915(1)(f) is ambiguous, this interpretive principle suggests that we adopt the narrowest possible meaning of the term, limiting it to municipal corporations. See Evans, 963 P.2d at 185.

¶30 For the reasons set forth above, we cannot conclude that the term "municipality" in section 76-10-915(1)(f) is ambiguous, nor, if it were ambiguous, would we be likely to interpret the term broadly. However, we acknowledge that we are unable to perceive any logical reason for including cities and towns in the municipality exemption but excluding other units of local government. In the interest of judicial caution, therefore, we reserve an ultimate decision on the meaning of "municipality" for another day and proceed to analyze whether, assuming the County appellees would qualify as municipalities, their activities at issue here are exempt because they were "authorized or directed by state law" for purposes of Utah Code section 76-10-915(1)(f).

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[6] By referring to such a "policy," we express no opinion on the question of whether Article XII, Section 20 is self-executing.

B. Whether the County Appellees' Activities Are Authorized or Directed by State Law

¶31 Section 76-10-915(1)(f) exempts municipalities from operation of the Antitrust Act only insofar as their activities are "authorized or directed by state law." Utah Code Ann. § 76-10-915(1)(f). As described above, the district court concluded that a municipality satisfies this condition as long as it acts "pursuant to general state statutes." The Summit Water appellants argue that this broad interpretation of the "authorized or directed" language is contrary to the City of Lafayette line of cases and that the requirement is not satisfied here by general laws that give no indication that the state authorizes counties to "monopolize a private water market." The County appellees, in turn, maintaining their position regarding the purpose of the municipality exemption, argue that to interpret section 76-10-915(1)(f) in accord with City of Lafayette is to "incorporate[] into the Utah Antitrust Act precisely what the legislative history indicates that section was intended to keep out of the Act--the narrow City of Lafayette reading of local government immunity from antitrust [claims]." They further argue that their activities would be exempt under current federal law, as it has developed in the twenty-seven years since City of Lafayette.

¶32 In accord with Utah Code section 76-10-926, we first examine federal law on this issue. Again, the principle first set forth by the City of Lafayette plurality and subsequently adopted by a majority of the United States Supreme Court is that a unit of local government is exempt from federal antitrust laws only if its "anticompetitive conduct [is] engaged in as an act of government by the State as sovereign, . . . pursuant to state policy to displace competition with regulation or monopoly public service." City of Lafayette, 435 U.S. at 413 (plurality). The basis for this holding was the doctrine of dual sovereignty, under which, according to the plurality, "state action" is exempt from federal antitrust laws. Id. at 412. The plurality stated that, in order for a state's subdivision to enjoy the "state action" exemption, there must be an indication that its action is "authorized or directed" by the state, so that the subdivision is in fact acting on behalf of the state rather than its own parochial interests. Id. at 414-15. The plurality then concluded that "an adequate state mandate for anticompetitive activities of . . . subordinate governmental units exists when it is found from the authority given a governmental entity to operate in a particular area, that the legislature contemplated the kind of action complained of." Id. at 415 (internal quotation omitted).

¶33 As an initial matter, we point out that, were we facing the same question considered by the Court in City of Lafayette and its successor--namely, whether to read an implicit exemption into antitrust law--we might well conclude that the Court's analysis in those cases was inapplicable because the dual sovereignty considerations that motivated the Court's reasoning in those cases are entirely absent when a state court is considering state antitrust laws. See Fine Airport Parking, Inc. v. City of Tulsa, 2003 OK 27, ¶ 19, 71 P.3d 5; Town of Hallie v. City of Chippewa Falls, 314 N.W.2d 321, 324 (Wis. 1982). The latter situation involves a potential conflict "'between the state laws dealing with municipalities and the state antitrust law,'" Fine Airport Parking, Inc., 2003 OK 27 at ¶ 19 (quoting Town of Hallie, 314 N.W. 2d at 324); in other words, the laws at issue in our case are those of a single sovereign--the state.

¶34 Unlike the state antitrust statutes involved in these Oklahoma and Wisconsin cases, section 76-10-915 of the Utah Antitrust Act includes an explicit statutory exemption for municipalities. Utah Code Ann. § 76-10-915(1)(f). A number of other state antitrust laws also contain statutory exemptions, leading courts in those states simply to apply the plain language of these exemptions. See, e.g., Miller's Pond Co. v. City of New London, 873 A.2d 965, 979-80 (Conn. 2005) (reaffirming that its statutory antitrust exemption for actions "specifically directed or required" by a state statute was intended to be more stringent than the federal "authorized or directed" standard and therefore holding that the federal standard was inapplicable); Alarm Detection Sys., Inc. v. Village of Hinsdale, 761 N.E.2d 782, 793 (Ill. App. Ct. 2001) (relying on the "plain language of [the statutory exemption in] the [Illinois] Antitrust Act in determining whether the Village was immune from liability").

¶35 Here, Utah's statutory exemption is, as far as we are aware, unique in that it is defined using language--"authorized or directed"--identical to that used by the City of Lafayette plurality. Utah Code Ann. § 76-10-915(1)(f) (exempting a municipality "to the extent authorized or directed by state law"); City of Lafayette, 435 U.S. at 414 (concluding that a municipality engages in state action when "the State authorized or directed [it] to act as it did"). This identical language, together with the mandate set forth in section 76-10-926 that our interpretations be guided by federal caselaw, indicate to us that the Legislature intended the "authorized or directed" standard in section 76-10-915(1)(f) to coincide with federal courts' interpretation of "authorized or directed" when delineating the

municipality exemption to federal antitrust laws.[6] The conclusion indicated by the plain language of these provisions is further supported by the fact that the Court's observations in City of Lafayette, in regard to the tendency of local governments to act in their own parochial interests rather than in the interest of the state as a whole, see 435 U.S. at 408, would appear of equal concern to the state itself. See Evans, 963 P.2d at 185 (recognizing the legislative intent that "those anticompetitive activities that have been approved by the state or federal government should not be punished by the [Utah Antitrust] Act"); see also Reppond v. City of Denham Springs, 572 So. 2d 224, 228 (La. Ct. App. 1990) ("Because municipalities perform many functions in both a private and a public sense, it would be imprudent to categorically reject the applicability of the anti-trust statutes to every act of such governmental entities."). It is thus not unreasonable for the legislature to have intended us to follow federal antitrust law on this issue even though the federal analysis originates in inapplicable notions of dual sovereignty.[7] Consequently, while we would

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[6] Our conclusion here is not inconsistent with our refusal above to interpret the term "municipality" to include all units of local government in accord with the federal state action exemption. As we explained above, federal antitrust law does not ascribe a unique meaning to the word "municipality." In contrast, City of Lafayette used the phrase, "authorized or directed," in the course of setting forth a distinct legal standard. The latter phrase, therefore, does have a unique meaning in federal antitrust law. Moreover, the implication of our holding is that the Utah Legislature simply imported the exemption recognized in City of Lafayette into the Utah Antitrust Act rather than trying to avoid the federal law, as the County appellees have argued.

[7] The County appellees bolster their argument that the Utah Legislature was "actively hostile" to the Court's rulings in City of Lafayette and City of Boulder by reference to its enactment of section 76-10-919(4) and (5), which prohibits damage awards against political subdivisions that violate the Antitrust Act. Utah Code Ann. § 76-10-919(4), (5). As the County appellees note, this provision mirrors the federal statute enacted by Congress in 1984, which similarly bars damage awards against local governments. Local Government Antitrust Act of 1984, 15 U.S.C. §§ 35-36. In our view, the Legislature's passage of section 76-10-919 is simply another example of its close adherence to federal antitrust law. This strengthens our conclusion that the "authorized or directed" language in section

(Footnote continued on next page.)

hesitate to infer a "state action" exemption from our state antitrust law where no such exemption is expressly provided, here we conclude that the legislature has in fact expressly included such an exemption in the state antitrust laws, and we therefore analyze the exemption's applicability relying on federal caselaw for guidance.

¶36 Following City of Lafayette, the United States Supreme Court in Town of Hallie reaffirmed that, in order to be eligible for the state action exemption, a municipality must "show that it acted pursuant to a 'clearly articulated and affirmatively expressed . . . state policy'" to displace competition. 471 U.S. at 39 (quoting City of Lafayette, 435 U.S. at 410). The standard is satisfied when the anticompetitive conduct alleged by the plaintiff "is a foreseeable result" of a state's grant of authority in a particular area. Id. at 42. Thus, in Town of Hallie, the Court held that state statutes authorizing a city to provide sewage services outside the city limits and to determine which areas it would serve sufficiently articulated a state policy that would allow the city to refuse sewage service in a particular area unless the landowners in that area voted in favor of annexation to the city. Id. at 37, 42-43. The Court in City of Columbia later held that state zoning laws that "authorize[d] municipalities to regulate the use of land and the construction of buildings and other structures within their boundaries," including their size, location, and spacing, were sufficient to immunize a city's ordinances limiting billboard placement. 499 U.S. at 370-73 & n.3. Adhering to the "foreseeable result" standard, the Court reasoned that "[a] municipal ordinance restricting the size, location, and spacing of billboards . . . necessarily protects existing billboards against some competition from newcomers," and that the anticompetitive conduct complained

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[7] (Footnote continued.)
76-10-915(1)(f) was similarly intended to parallel federal law. Moreover, while the County appellees maintain that the Supreme Court's decisions caused "considerable consternation" in Congress and that it was this "aversion" to the Supreme Court's decisions that led to the passage of the Local Government Antitrust Act and to section 76-10-919, it seems significant that neither Congress nor the Utah Legislature simply declared all local governmental entities exempt from antitrust laws in these provisions. Their actions in limiting monetary damages while failing to grant a complete exemption appears to signal acquiescence in, and possibly even approval of, the idea that local governments may have to comply with orders of injunctive relief if their anticompetitive actions violate antitrust provisions.

of by a newcomer billboard company was thus foreseeable. Id. at 373.

¶37 The County appellees make much of the idea that City of Columbia substantially broadened the scope of federal antitrust immunity for municipalities, reversing the "aggressive narrowing" of such immunity that, in their view, was imposed by City of Lafayette. They thus argue that we should follow the same broad interpretation that, they maintain, the Court has now adopted. The Summit Water appellants disagree with the County appellees in regard to whether municipalities were altogether exempt from federal antitrust laws before the Court's ruling in City of Lafayette. They further contend that City of Columbia adhered to the same standard for construing the municipality exemption that was originated in City of Lafayette and followed in Town of Hallie.

¶38 Having reviewed the line of federal Supreme Court cases from City of Lafayette to City of Columbia and the opinions of lower courts construing them, we see no clear indication that the Court in City of Columbia intended to broaden its previously-adopted standard. The Court's primary concern in its discussion of the municipality exemption standard in that case was to clarify that a federal court applying the exemption need not determine whether a municipal act is "substantively and procedurally correct" under state law in order to conclude that the act was taken pursuant to a state policy to displace competition. City of Columbia, 499 U.S. at 371-72 (internal quotation omitted). To require federal courts to engage in such scrutiny of state law would, the Court explained, "undermin[e] the very interests of federalism [the state action immunity doctrine] is designed to protect." Id. at 372.

¶39 This clarification thus did nothing to alter the range of state authorization that suffices to immunize anticompetitive municipal actions from antitrust laws. The outer boundaries of that range are found in two basic principles that the Court has consistently acknowledged. First, "the requirement of 'clear articulation and affirmative expression' is not satisfied when the State's position is one of mere neutrality respecting the municipal actions challenged as anticompetitive. A state that allows its municipalities to do as they please can hardly be said to have 'contemplated' the specific anticompetitive actions for which municipal liability is sought." City of Boulder, 455 U.S. at 55 (holding that a neutral grant of home rule authority to municipalities could not constitute a state "policy" to displace competition in the provision of cable television services); see also Town of Hallie, 471 U.S. at 43 (concluding that specific statutory authorization to municipalities to provide sewage

services outside city boundaries was not "neutral on state policy"). Second, however, the municipality need not show "a specific, detailed legislative authorization" to engage in the particular anticompetitive conduct at issue. City of Lafayette, 435 U.S. at 415 (plurality); see also City of Columbia, 499 U.S. at 372 ("We have rejected the contention that th[e] ["clear articulation"] requirement can be met only if the delegating statute explicitly permits the displacement of competition."); Town of Hallie, 471 U.S. at 43-44 (rejecting the idea that "a legislature must expressly state in a statute or its legislative history that the legislature intends for the delegated action to have anticompetitive effects"); id. at 45 (rejecting the idea that the municipality must "show that the State 'compelled' it to act").

¶40 The "foreseeability" inquiry that the Court settled on in Town of Hallie, 471 U.S. at 42, and in City of Columbia, 499 U.S. at 373, ensures that the required state authorization falls somewhere between these two poles. Subsequent decisions of lower federal courts have thus focused on whether the anticompetitive action alleged is a "foreseeable result" of state statutes. See Elec. Inspectors, Inc. v. Vill. of E. Hills, 320 F.3d 110, 121 (2d Cir. 2002) (concluding that "the plaintiff's complete exclusion from the market for required electrical inspection services . . . . is a foreseeable result of a statute that requires municipalities to enforce a uniform fire code and administrative regulations that condition the issuance of certificates of occupancy upon inspections by town-designated agents"); Mich. Paytel Joint Venture v. City of Detroit, 287 F.3d 527, 536 (6th Cir. 2002) (concluding that a city's facilitation of a private telephone company's monopoly by accepting its bid to install and service pay telephones in city prisons was "the logical and foreseeable result of the City's broad authority under state law and the Michigan Constitution to bid out public contracts for the maintenance of City prisons"); Surgical Care Ctr. v. Hosp. Serv. Dist. No. 1, 171 F.3d 231, 235 (5th Cir. 1999) (en banc) (concluding that a hospital service district's alleged exclusivity and tying agreements that aimed to exclude a private hospital from the market for outpatient surgical care were "not the foreseeable result of allowing a hospital service district to form joint ventures").

¶41 We therefore hold that the district court erred in concluding that "for an activity to satisfy the 'authorized or directed' requirement in section 76-10-915(1)(f) of the Utah Code it is necessary only that a political subdivision act pursuant to general state statutes." Rather, a court must examine the particular statutes at issue and then engage in the foreseeability analysis set forth above. Here, the question is

thus whether the alleged price-fixing, agreements tying Mountain Regional water distribution to the grant of building permits and planning approvals, and other anticompetitive activities are the "foreseeable result" of the authority granted the County appellees under state law.

¶42 We first set forth the provisions that, according to the County appellees, grant the necessary authority. The County appellees cite provisions in the County Land Use, Development, and Management Act (CLUDMA)[8] and the Utah Special Service District Act, Utah Code Ann. §§ 17A-2-1301 to -1332 (2004), as providing the County appellees with authority to act and articulating a state policy to displace competition in the area of culinary water distribution. The CLUDMA provisions that, according to the County appellees, are comparable to those found sufficient in City of Columbia are as follows. Section 17-27a-102 provides that

> counties may enact all ordinances, resolutions, and rules and may enter into other forms of land use controls and development agreements that they consider necessary or appropriate for the use and development of land within the unincorporated area of the county, including ordinances, resolutions, rules, restrictive covenants, easements, and development agreements governing uses, density, open spaces, structures, buildings, energy-efficiency, light and air, air quality, transportation and public or alternative transportation, infrastructure, street and building orientation and width requirements, public facilities, and height and location of

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[8] The parties cite to the version of CLUDMA in effect at the time they submitted their briefs. See Utah Code Ann. §§ 17-27-101 to -1003 (2001 & Supp. 2004) (repealed 2005). In the 2005 legislative session, the Act was renumbered and revised. See Utah Code Ann. §§ 17-27a-101 to -803 (Supp. 2005). While generally we consider the law in effect at the time a claim arises or is brought in court, see State v. One Lot of Pers. Prop., 2004 UT 36, ¶¶ 13-17, 90 P.3d 639, current law is relevant when injunctive relief is requested, see Nat'l Coalition to Save Our Mall v. Norton, 269 F.3d 1092, 1096-97 (D.C. Cir. 2001) (citing Miller v. French, 530 U.S. 327 (2000)). Because injunctive relief is requested here, we consider the current version of the CLUDMA in our analysis.

vegetation, trees, and landscaping, unless expressly prohibited by law.

Utah Code Ann. § 17-27a-102(1)(b) (Supp. 2005). Section 17-27a-301 requires that every county "enact an ordinance establishing a countywide planning commission." Id. § 17-27a-301(1)(a). Section 17-27a-401 requires that every county "prepare and adopt a comprehensive, long-range general plan" that "may provide for . . . the efficient and economical use, conservation, and production of the supply of . . . water." Id. § 17-27a-401(1), (2)(c)(i).

¶43 The provisions of the Special Service District Act that the County appellees assert are relevant authorize a county to "establish a special service district for the purpose of providing [water] within the area of the special service district." Id. § 17A-2-1304(1)(a)(i) (2004). "The area within any special service district may include all or any part of the county . . . that established it except that . . . a special service district may not include any area not directly benefitted by the services provided under this section without the consent of the nonbenefitted landowner." Id. § 17A-2-1304(2)(a)(iii). The scope of the service district's authority then includes, among other things, "[t]he power to exercise all powers of eminent domain possessed by the county . . . which established" it, "[t]he power to enter into contracts . . . to carry out [its] functions," and "[t]he power to acquire or construct facilities." Id. § 17A-2-1314(1)(b), (c), (d).

¶44 Although these provisions clearly contemplate a county's establishment of a water service district, such as Mountain Regional, and grant both counties and special service districts certain powers, lacking from the statutes is any suggestion that a county might use its planning or zoning authority to facilitate the operation or growth of special service districts once they are created. In particular, the general grant of authority to counties contained in section 17-27a-102 allows counties to enter into "development agreements" in a number of areas but does not mention the provision of water or other utility services. Id. § 17-27a-102(1)(b) (Supp. 2005). Unlike in Town of Hallie, where a town's requirement that unincorporated areas annex themselves to the town was a prerequisite to supplying sewage services, 471 U.S. at 43, the allegation here is that developers are precluded from proceeding with their development unless they accept Mountain Regional water services; in Town of Hallie, desired services were tied to acceptance of incorporation within the governmental entity that provided those services while in our case, developers are allegedly forced to accept services they may or may not desire.

The Special Service District Act itself appears to prohibit a service district from incorporating a nonbenefitted landowner's property without the landowner's consent. Utah Code Ann. § 17A-2-1304(2)(a)(iii) (2004).

¶45 We can find no other statute within either of these Acts that contemplates any connection between a county's development activities and its favoring of special service districts that it has established. The statutory scheme does not reveal a state policy of allowing counties to displace competition with a special service district unless the special service district is successful through its own competitive efforts in acquiring an exclusive market share within its area. Other courts have similarly noted that a state's grant of authority to a government entity or utility to provide a natural resource does not necessarily indicate an intent to immunize the entity or utility from antitrust laws. See Cantor v. Detroit Edison Co., 428 U.S. 579, 595-96 (1976) ("There is no logical inconsistency between requiring [a private utility] to meet regulatory criteria insofar as it is exercising its natural monopoly powers and also to comply with antitrust standards to the extent that it engages in business activity in competitive areas of the economy."); Parks v. Watson, 716 F.2d 646, 663 (9th Cir. 1983) ("[M]erely because the state may authorize a city to be the sole supplier of a natural resource and to set prices for that resource, it does not necessarily follow that the city is immunized from antitrust liability when it attempts to tie the purchase of a non-monopolized product or service to the sale of that natural resource."). We therefore conclude that the anticompetitive activities alleged by the Summit Water appellants, including the act of tying building permit and planning approvals for developers and others to acceptance of Mountain Regional as the development's water provider, are not a foreseeable result of the statutory scheme.[9]

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[9] We note, however, that anticompetitive effects resulting from activities that any of the County appellees undertake in the ordinary course of performing their authorized duties, where there are no uncontemplated ties between county and special service district functions, might be considered foreseeable. Moreover, we recognize that the Court in City of Columbia rejected a "conspiracy" exception to the municipality exemption. 499 U.S. at 379 (refusing to "allow plaintiffs to look behind the actions of state sovereigns to base their claims on 'perceived conspiracies to restrain trade'" and reaffirming that, "with the possible market participant exception, any action that qualifies as state action" under the foreseeability test is "exempt from

(Footnote continued on next page.)

¶46 Accordingly, even assuming without deciding that the County appellees qualify as "municipalities" under Utah Code section 76-10-915(1)(f), they would not be entitled to the municipality exemption contained in that subsection because their alleged anticompetitive conduct is not "authorized or directed by state law." We therefore reverse the district court's dismissal of the Summit Water appellants' complaint on that basis.[10]

II. WHETHER THE EXEMPTIONS IN SECTION 76-10-915 ARE AFFIRMATIVE DEFENSES

¶47 We further reverse the district court in regard to its requirement that the Summit Water appellants amend their pleadings to assert specifically that the anticompetitive activities alleged were not authorized or directed by state law. The structure of the Utah Antitrust Act, together with federal antitrust caselaw, make clear that the exemptions in Utah Code section 76-10-915(1)(f) are to be pleaded by a defendant as an affirmative defense. See Utah R. Civ. P. 8(c) ("In pleading to a preceding pleading, a party shall set forth affirmatively . . . any . . . matter constituting an avoidance or affirmative defense."). Section 76-10-915 states that other provisions of the Antitrust Act must not "be construed to prohibit" the activities that it lists, including "the activities of a municipality to the extent authorized or directed by state law." Utah Code Ann. § 76-10-915(1)(f). The County appellees argue that this language distinguishes the antitrust exemptions from a proper affirmative defense because in the case of the exemptions, "[t]he cause of action never arises in the first instance." We do not agree that there is a meaningful distinction in that regard between the exemptions listed in section 76-10-915 and other affirmative defenses. There is no legitimate cause of

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[9] (Footnote continued.)
the operation of the antitrust laws").

[10] Because we conclude that the actions alleged by the Summit Water appellants are not "authorized or directed by state law" under section 76-10915(1)(f), we need not address the Summit Water appellants' additional argument that the municipality exemption does not apply to the County appellees because they are acting as market participants. As noted above, City of Columbia left open the question of whether the municipality exemption would apply when the municipality is acting as a market participant. 499 U.S. at 379. Further, the Summit Water appellants' claim that Senator Waddingham's affidavit was inappropriately excluded is moot under our conclusion here.

action against an individual who kills another in self-defense, for example, but a murder defendant is nevertheless required to assert self-defense as an affirmative defense. See Utah Code Ann. § 76-2-402 (2003); State v. Starks, 627 P.2d 88, 92 (Utah 1981).

¶48 The line of federal Supreme Court cases since City of Lafayette indicates that the municipality exemption is regarded as an affirmative defense. See, e.g., City of Columbia, 499 U.S. at 369 (indicating that the municipality exemption was asserted by the defendants in a motion for judgment notwithstanding the verdict); id. at 372 (referring to the doctrine at issue as "the Parker[v. Brown, 317 U.S. 341 (1943)] defense"). Moreover, as the County appellees concede, the burden is on the municipality to "demonstrate that it is engaging in the challenged activity pursuant to a clearly expressed state policy" to displace competition. Town of Hallie, 471 U.S. at 40. It would make little logical sense to require plaintiffs to specifically plead a matter in the negative that the defendants would then be required to prove to the contrary in order to prevail against the plaintiffs on that ground.

III. CAUSE OF ACTION UNDER UTAH CONSTITUTION ARTICLE XII, SECTION 20

¶49 As indicated above, the parties disagree as to whether we need determine whether Article XII, Section 20 is self-executing when we have already determined that the Summit Water appellants may proceed with their statutory claim under the Utah Antitrust Act. While the Summit Water appellants suggest that we need not reach the constitutional issue, the County appellees allege that we must resolve the issue of whether the constitutional provision "trumps all the liability and damage limitations in the 1979 Act." We accept the concession of the Summit Water appellants for the following reasons. First, the County appellees have not provided any specific citation to the record where we might find the assertion that they ascribe to the Summit Water appellants. The amended complaint submitted by the Summit Water appellants does list Article XII, Section 20 as a parallel basis, together with the Utah Antitrust Act, for awarding injunctive relief against the County appellees and damages against Montgomery Watson and Jarvis. The complaint does not suggest, however, that the constitutional provision "trumps" the statute in this regard.

¶50 Second, the Summit Water appellants lost on the issue of the proper interpretation of Article XII, Section 20 below. Their concession on that point, if we decide in their favor on the statutory issue, suggests that they do not consider a

constitutional right of action essential to their complaint as long as their statutory claim is intact. Our settled policy is to avoid giving advisory opinions in regard to issues unnecessary to the resolution of the claims before us. Savage v. Utah Youth Vill., 2004 UT 102, ¶ 25, 104 P.3d 1242. We therefore decline to analyze whether Article XII, Section 20 is self-executing.

CONCLUSION

¶51 We reverse the district court's dismissal of the Summit Water appellants' claims under section 76-10-914 of the Utah Antitrust Act. We hold that, even assuming the defendants qualify as "municipalities" for purposes of section 76-10-915(1)(f), the activities at issue here were not "authorized or directed by state law," and defendants are therefore not exempt from the requirements of the Utah Antitrust Act. We further reverse the district court's order requiring the Summit Water appellants to specifically plead that the activities they allege are not authorized or directed by state law because we hold that the exemptions in section 76-10-915 constitute affirmative defenses, which must be pleaded by a defendant. Finally, because we decide in favor of the Summit Water appellants on their statutory claim, we do not consider whether Article XII, Section 20 of the Utah Constitution is self-executing.

¶52 Associate Chief Justice Wilkins, Justice Durrant, Justice Parrish, and Judge Willmore concur in Chief Justice Durham's opinion.

¶53 Having recused himself, Justice Nehring does not participate herein; District Judge Thomas Willmore sat.

AGENDA ITEM 9

AUTHORIZATION TO PROCEED WITH RULE ADOPTION – R309-100,105, 110, 115, 200, 210, 215, 220, 225, 300, 400, AND 405 – FEDERAL RULE ADOPTION AND REORGANIZATION – Patti Fauver

Authorization to Proceed with Rule Adoption
R309-100, 105, 110, 115, 200, 210, 215, 220, 225, 300, 400 & 405

Federal Rule Adoption & Reorganization

On December 8, 2006 the Board authorized the Division to proceed with filling rule changes to R309-100, 105, 110, 115, 200, 210, 215, 220, 225, 300, 400 and 405 for the adoption of the federal Long Term 1 Enhanced Surface Water Treatment Rule (LT1), the Stage 2 Disinfection / Disinfection By-Products Rule (Stage 2), Long Term 2 Enhanced Surface Water Treatment Rule (LT2), minor corrections for the Exemption process and changes to the Division's Improvement Priority Rule. These changes to incorporate the federal rules are necessary in order for the State of Utah to retain primacy.

This discussion will focus on the rules changes necessary for the primacy applications for LT1, LT2, Stage 2 and the Improvement Priority Rule. The rules included are R309-105, 110, 200, 210, 215, 220, 225, and 400.

The Division has received 2 comments on these changes.

The first comment offered a slight change to the definition of for "Bank filtration". The proposed definition is taken verbatim out of the Federal Register and has implication with regard to the log credit for the treatment process and as such our definition should remain as it was proposed. The comment and the Division's response are attached.

The second comments are from Region 8 EPA's review of the draft primacy packets for each rule. The Division's responses to the comments have been added to each comment. and are attached.

Staff Recommendation:

Staff recommends a two part action.

1. The Drinking Water Board authorizes staff to proceed with the filing the effective notices for R309-105, 110, 200, 210, 215, 220, 225, and 400; and then

2. The Drinking Water Board authorizes staff to proceed with filing the attached changes and appropriate forms to Rules R309-105, 110, 210, 215, 220 and 225 to address the comments from Region 8 EPA with the Division of Administrative Rules for rule adoption.

From: Patti Fauver
To: Kerry Carpenter
Date: 02/17/07 9:02 PM
Subject: Re: Proposed Administrative Rule Amendments (R309-110-4 Definitions)
Attachments: Patti Fauver.vcf

CC: Bill Birkes

Kerry,

Thanks for taking the time to review our rule submittal and comment.

The definition for "Bank filtration" comes directly out of the Federal Register as part of the Long Term 2 Enhanced Surface Water Treatment Rule published January 6, 2006. It is used in assigning water treatment credits within the rule. In order to assure that we are as stringent as federal regulations we will be unable to incorporate your suggestions.

We will correct the clerical error on the "Presedimentation" definition with our next rule filing.

Thanks again,
Patti

Patti Fauver
Environmental Scientist
Utah Division of Drinking Water
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phone: 801-536-4196
fax: 801-536-4211
email: pfauver@utah.gov

>>> Kerry Carpenter 01/16/07 4:09 PM >>>
In reading the proposed amendments, the following is offered for your consideration:

Under the definition for "Bank infiltration," consider expanding the definition to include other water bodies, such as:

". . .through the bed or bank(s) of a flowing stream, lake or reservoir. Infiltration. . .."

This would be more consistent with other definitions in this section and would accommodate developments such as the Sand Hollow Reservoir recovery wells in Washington County.

Under the definition for "Presedimentation," there is a clerical error in which the "r" has been omitted from the word "water."

Kerry Carpenter, P.E.
Enforcement Engineer
Division of Water Rights
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EPA Region 8 Municipal System's Review of Utah's Draft Long Term 1 Enhanced Surface Water Treatment Rule

Review Performed by Bob Clement, Environmental Engineer 1/30/2007

Comment # 1	Federal Citation	State Citation	Crosswalk
	Appendix A & B to subpart Q	R309-?	Page 6-10

Utah does not include Appendix A or B, are these appendices adopted by reference elsewhere in your regulations?

In Utah, it is extremely difficult to formally adopt information in a table format, as such, Utah has not adopted Appendix A to subpart Q. Utah has adopted all the contents of Appendix A to subpart Q in other parts of our rules. The MCLs appear in R309-200, the major sources of contaminants in drinking water appear in R309-225-8, the health affects language appears in R309-220-15, the CCR Units is a calculated value (which is subject to change based on detected level) based on the requirement to use whole numbers which appears in R309-225-5(4)(d). Therefore, as there are no unique requirements in Appendix A to subpart Q - Utah has not adopted it.

Comment # 2	Federal Citation	State Citation	Crosswalk
	Appendix B endnote 10	R309-220-15(4)	Page 10

"4" is the standard health effects language for turbidity in Utah's regulations. Utah needs to include LT1ESWTR with the other SW rules in the last sentence.

Update completed. Rule amendment submitted.

Comment # 3	Federal Citation	State Citation	Crosswalk
	141.562	R309-215-9	Page 22

There are 7 pages associated with 215-9, Utah citation is too general. See comment # 4.

Comment # 4	Federal Citation	State Citation	Crosswalk
	141.563.(a-c)	R309-215-9(5)(b)(i-iii)	Page 22-23

Utah does not include language to allow monitoring at the combined filter effluent if there are only 2 filters in "i", but does allow it in "ii", but then does not have language in "iii". Very inconsistent. See comment #5

Comment # 5	Federal Citation	State Citation	Crosswalk

	141.57	R309-215-9(5)(b)(i-iii)	Page 24
Utah’s regulations combines sections 141.563 (description of follow up actions) & 141.570 (reporting requirements) into (5)(b)(i-iii), and it is difficult to discern what a PWS is actually required to report. Our general comment to Utah’s regulations corresponding to Subpart H, P & T is that they are spread out over several sections and are confusing and difficult to follow.			

Comment # 6	Federal Citation	State Citation	Crosswalk
	142.14 &16		Page 24
Utah’s draft package does not include information for these sections.			

EPA Region 8 Municipal System's Review of Utah's Draft Stage 2 Disinfectants and Disinfection Byproducts Rule

Review Performed by Bob Clement, Environmental Engineer 1/30/2007

Comment # A	Federal Citation	State Citation	Crosswalk
	141.132(b)(1)(iii)	R309-210-8(2)(a)(iii)	Page 11
Add "for TTHM and HAA5" after reduced monitoring in the 1st sentence. All other language is matched except for these words.			
Update completed. Non-substantive change submitted.			

Comment # B	Federal Citation	State Citation	Crosswalk
	141.151(d)	R309-225(3)(2)	Page 14
Utah's regulations refer to R444-14-11(2) but, the materials sent only go to R444-8.			
The correct reference is R444-14-4(2) and has been updated in our rules.			

Comment # C	Federal Citation	State Citation	Crosswalk
	Appendix A & B to subpart Q	R309-?	Page 15
There is no reference to Appendix A or B to subpart Q, has the state adopted this by reference and not denoted it in the crosswalk?			
In Utah, it is extremely difficult to formally adopt information in a table format, as such, Utah has not adopted Appendix A to subpart Q. Utah has adopted all the contents of Appendix A to subpart Q in other parts of our rules. The MCLs appear in R309-200, the major sources of contaminants in drinking water appear in R309-225-8, the health affects language appears in R309-220-15, the CCR Units is a calculated value (which is subject to change based on detected level) based on the requirement to use whole numbers which appears in R309-225-5(4)(d). Therefore, as there are no unique requirements in Appendix A to subpart Q - Utah has not adopted it.			

Comment # 1	Federal Citation	State Citation	Crosswalk
	141.600(a) 141.620(a)	R309-210(9)(1)(a) R309-210(10)(1)(a)	Page 19
Utah's regulations do not include the language "The requirements of this subpart U (and V in the 2nd reference) are NPDWR", is there a general statement elsewhere in Utah's regulations that make this statement?			

This seems to be an irrelevant requirement for Utah. The statement does not make the requirements any more enforceable for Utah and EPA cannot enforce state rules and would rely on the CFR version.

Comment # 2	Federal Citation	State Citation	Crosswalk
	141.600(b)	R309-210(9)(1)(b)	Page 19

Replace “and” with “or” in this section of sentence “ultraviolet light: or if your system is a nontransient”.

Update completed. Rule amendment submitted.

Comment # 3	Federal Citation	State Citation	Crosswalk
	141.600(c)(1)	R309-210(9)(1)(c)(i)	Page

Delete the reference to “table”

Update completed. Non-substantive change submitted.

Comment # 4	Federal Citation	State Citation	Crosswalk
	141.600(c)(1)(i-iv)	R309-210(9)(1)(c)(i)(A-D)	Page 20-21

The footnotes are not included for each entry but apply to all in Utah’s regulations (c)(iii-v).

Correct as per the table in the FR, the footnotes apply to all of the entries as specified.

Comment # 5	Federal Citation	State Citation	Crosswalk
	141.600(c)(1)(i-v) footnotes	R309-210(9)(1)(c)(iv)	Page 21

Because Utah writes out the table, the language “by the date indicated” must be spelled out as “(i)(A)(I), (B)(I), etc.

Update completed. Non-substantive change submitted.

Comment # 6	Federal Citation	State Citation	Crosswalk
	141. 600(c)(1)(i-v) footnotes	R309-210(9)(1)(c)(v)	Page 21

Change “identified in this column” to (i)(A)(III), (i)(B)(III), (i)(C)(III), (i)(D)(III) and (ii)(A)(III)

Update completed. Non-substantive change submitted.

Comment # 7	Federal Citation	State Citation	Crosswalk
	141.600(c)(2)	R309-210(9)(1)(c)(ii)	Page 22

		Should be (vi)	

Change “(c)(i)” to “(c)(i-v)” to correspond to the federal regulation of (c)(1) which includes the entire table.

Update completed. Non-substantive change submitted.

Comment # 8	Federal Citation	State Citation	Crosswalk
	141.600(d)(1)	R309-210(9)(1)(d)(i)	Page 22

Add “the water system” prior to “must have taken” in the 3rd line from the bottom

Update completed. Rule amendment submitted.

Comment # 9	Federal Citation	State Citation	Crosswalk
	141	R309-	Page

Purposefully left blank

No action required, careover text box from previous page.

Comment # 10	Federal Citation	State Citation	Crosswalk
	141.601(a)(4)	R309-210(9)(2)(a)(iv)	Page

Plans need to be kept as long as the reports. Utah’s reference R309-105(17)(8) states that plans must kept for 10 years and references R309-105(17)(1) “except as otherwise noted” but then does note that plans must be kept as long as reports (which works out to at least 2 additional years more than the 10 years to keep a plan.) There needs to be a statement in “9” that says the plan associated with this report must be kept as long as the report.

Issue clarified. Non-substantive change submitted.

Comment # 11	Federal Citation	State Citation	Crosswalk
	141.601(b)(1)	R309-210(9)(2)(b)(i)	Page 24

Delete reference to the table. Replace “or with “of” in (E)(iv) (F)(iv) (G)(iv) (H)(iv) (I)(iv) (J)(iv) (N)(iv) (O)(iv) (P)(iv). In “(J)(II) replace “ten” with “twelve”; in (J)(III) replace “eight” with “ten”; in (J)(V) replace “six with “eight”. In (N)(I) replace “six” with “four” and replace “60” with “90”.

Update completed. Rule amendment submitted. Non-issue in Utah because for the 2 of the 3 where monitoring is less stringent than the federal rule are for systems with populations greater than 1 million, Utah 's largest system serves a population of 300,000. The other error is more stringent than the federal rule for ground water systems serving between 10,000 to 99,999.

Comment # 12	Federal Citation	State Citation	Crosswalk

	141.602(a)(2)(i)(B) -5	R309-210(9)(3)(a)(ii)(A) (II)(ee)	Page 29
Add “all 8-inch and larger pipes that connect pressure zones, influence zones from different sources” prior to storage tanks.			
Update completed. Rule amendment submitted.			

Comment # 13	Federal Citation	State Citation	Crosswalk
	141.605(b)	R309-210(9)(6)(b)(i)to(xv)	Page 36
Replace “60”with “90” in (iv)(A)			
Update completed. Rule amendment submitted.			

Comment # 14	Federal Citation	State Citation	Crosswalk
	141.620(c)	R309-210(10)(1)(c)	Page 39
Replace “in the following table” with the sections that describe its contents			
Update completed. Non-substantive change submitted.			

Comment # 15	Federal Citation	State Citation	Crosswalk
	141.625(a)	R309-210(10)(6)(a)	Page 46
Add “a HAA5 sample is > 0.06 mg/L at any location” at the end of the last sentence.			
Update completed. Rule amendment submitted.			

Comment # 16	Federal Citation	State Citation	Crosswalk
	141.626(b)(2)(i)	R309-210(10)(7)(b)(ii)(A)	Page 47
I was looking for an example where “if you are” was translated into the following “the water system is”. Compare this with 10(6)(b) where “you are in violation” is translated to “the water system are” The former sounds much better and you have used it here in this section. There are many places that “are” could be replaced with “is”, I suggest a global search.			
Update completed. Non-substantive change submitted.			

Comment # 17	Federal Citation	State Citation	Crosswalk
	141.627	R309-10(8) & (9)	Page 48
Change “qualify” to “qualifies” and “meet” to “meets” and change “were” to “was” 10(9)			
Update completed. Non-substantive change submitted.			

Comment # 18	Federal Citation	State Citation	Crosswalk

	142.14 & 16	R309-	Page
Utah did not submit information for these sections of the crosswalk			

EPA Region 8 Municipal System's Review of Utah's Draft Long Term 2 Enhanced Surface Water Treatment Rule

Review Performed by Bob Clement, Environmental Engineer 1/30/2007

Comment # 1	Federal Citation	State Citation	Crosswalk
	141.2	R309-110-4	Page 3
Add "to reduce microbial pathogens" after "no further treatment".			
Update completed. Non-substantive change submitted.			

Comment # 2	Federal Citation	State Citation	Crosswalk
	Appendix A to subpart Q	R309- ?	Page 6
There is no reference to Appendix A to subpart Q, has the state adopted this by reference and not denoted it in the crosswalk?			
In Utah, it is extremely difficult to formally adopt information in a table format, as such, Utah has not adopted Appendix A to subpart Q. Utah has adopted all the contents of Appendix A to subpart Q in other parts of our rules. The MCLs appear in R309-200, the major sources of contaminants in drinking water appear in R309-225-8, the health affects language appears in R309-220-15, the CCR Units is a calculated value (which is subject to change based on detected level) based on the requirement to use whole numbers which appears in R309-225-5(4)(d). Therefore, as there are no unique requirements in Appendix A to subpart Q - Utah has not adopted it.			

Comment # 3	Federal Citation	State Citation	Crosswalk
	141.700 (a)	R309-215-15 (1)(a)	Page 6
Utah's regulations do not include the language "The requirements of this subpart W are NPDWR", is there a general statement elsewhere in Utah's regulations that make this statement?			
This seems to be an irrelevant requirement for Utah. The statement does not make the requirements any more enforceable for Utah and EPA cannot enforce state rules and would rely on the CFR version.			

Comment # 4	Federal Citation	State Citation	Crosswalk
	141.700(c)(4)	R309-does not adopt	Page 8
Utah does not adopt uncovered finished water reservoir language. Does Utah have current regulatory language that gives them the authority to eliminate such reservoirs if one were to be found now or in the future? If so, please provide this more stringent language for our review, if not I would suggest			

Utah has had rules prohibiting uncovered finish water reservoir pre-dating state primacy. If a system a uncovered reservoir is found the system will be required to take it out of service or face an "Unapproved" rating (R309-400) and possible administrative penalties (R309-405). Copies of all rules will be provided.

Comment # 5	Federal Citation	State Citation	Crosswalk
	141.701(d)(3)	R309-215-15(2)(d)(ii)	Page 12

Replace “an” with “and” in the last sentence.

Update completed. Non-substantive change submitted.

Comment # 6	Federal Citation	State Citation	Crosswalk
	141	R309-	Page

Purposefully left blank

No action required, careover text box from previous page.

Comment # 7	Federal Citation	State Citation	Crosswalk
	141.702(b)	R309-215-15(3)(b)	Page 16

The reference is not correct “(b)(1) & (b)(2) should be “(b)(i) & (b)(ii)”

Update completed. Non-substantive change submitted.

Comment # 8	Federal Citation	State Citation	Crosswalk
	141.703(e)(2)	R309-215(4)(e)(ii)	Page 19

The reference is not correct “(e)(i) A or B” should be “(e)(ii)”

Update completed. Non-substantive change submitted.

Comment # 9	Federal Citation	State Citation	Crosswalk
	141.704(b)	R309-215-15(5)(b)	Page 21

Utah’s regulation refers to R309-200(4) (3) which incorporate analytical methods by reference in 141 but not in 136.3(a) of the CFR. Crosswalk reference is not correct.

In Utah, the State Health Department, Division of Epidemiology and Laboratory Services, Bureau of Labratory Improvement certifies the laboratories. We have added the reference to Rule R444-14. Rule for the Certification of Environmental Laboratories lays out the criteria and references the analytical methods. R444-14-4(1) The department may only approve a certified laboratory to analyze an analyte by specific method. The department may approve a certified laboratory for an analyte using methods described in the July 1, 1992 through 2005, editions of 40 CFR Parts 141, 142, and 143 (Safe Drinking Water Act); 40 CFR Parts 136 and 503.8 (Clean Water Act); 40 CFR Parts 260 and 261 (Resource Conservation and Recovery Act).

Comment # 10	Federal Citation	State Citation	Crosswalk
	141.704(b)(1)	R309-215-15(5)(b)(i)	Page 21

The reference is not correct “(b)(2)” should be “(b)(ii)”

Update completed. Non-substantive change submitted.

Comment # 11	Federal Citation	State Citation	Crosswalk
	141.706(e)	R309-215-15(7)(e)(i)	Page 23

The reference is not correct “(e)(1) & (e)(2)” should be “(e)(i) & (e)(ii)”

Update completed. Non-substantive change submitted.

Comment # 12	Federal Citation	State Citation	Crosswalk
	141.706(e)(1)(i-iii)	R309-215-15(7)(e)(i)(A-I)	Page 23

The federal regulations in (e) (1) “6 & 7” were combined into “F” of Utah’s regulations, was this your intent? Utah’s regulations do not match the federal outline from “(e) (1) (i) to (e)(1)(iii)”, is this your intent. Utah’s regulations have so far matched the precisely the federal outline.

The intent is to match the federal outline. Update completed. Non-substantive change submitted.

Comment # 13	Federal Citation	State Citation	Crosswalk
	141.706(e)(2)	R309-215-15(7)(e)(ii)	Page 23

Utah’s regulations separates the federal regulation “8” and its footnote into “H” and “I”, is this your intent or is it your intent to have the footnote be part of “H”?

The intent is to match the federal outline. Update completed. Non-substantive change submitted.

Comment # 14	Federal Citation	State Citation	Crosswalk
	141.707(b)	R309-215-15(8)(b)	Page 25

Change “141.705” to R309-215-15(6)

Update completed. Non-substantive change submitted.

Comment # 15	Federal Citation	State Citation	Crosswalk
	141.707(f)(2)(iv)	R309-215-15(8)(c)(i)(D)	Page 29

Change “(c)(1)” to “(c)(i)”

Update completed. Non-substantive change submitted.

Comment # 16	Federal Citation	State Citation	Crosswalk
	141.709(c)	R309-215-15(10)(c)	Page 33

The reference is not correct “(c)(1) & (c)(2)” should be “(c)(i) & (c)(ii)”

Update completed. Non-substantive change submitted.

Comment # 17	Federal Citation	State Citation	Crosswalk
	141.709(d)(2)&(3)	R309-215-15(10)(d)(ii)&(iii)	Page 35

There is just an “S” in front of CTcalc/CT99.9 denoting the sum of all CTcalc/CT99.9. Suggest describing this in the same way as you do in R309-215-14.

Update completed. Non-substantive change submitted.

Comment # 18	Federal Citation	State Citation	Crosswalk
	141.710(c)	R309-215-15(11)(c)	Page 38

Delete the reference to “table”.

Update completed. Non-substantive change submitted.

Comment # 19	Federal Citation	State Citation	Crosswalk
	141.711(a)	R309-215-15(12)(a)	Page 39

Include “conventional” before treatment in (i)(A), (ii)(A), (iii)(A) and (iv)(A).

Update completed. Non-substantive change submitted.

Comment # 20	Federal Citation	State Citation	Crosswalk
	141.714	R309-?	Page 45

See comment 4 above.

Utah has had rules prohibiting uncovered finish water reservoir pre-dating state primacy. If a system a uncovered reservoir is found the system will be required to take it out of service or face an "Unapproved" rating (R309-400) and possible administrative penalties (R309-405). Copies of all

Comment # 21	Federal Citation	State Citation	Crosswalk
	141.715(b)	R309-215-15(14)(b)	Page 45

Delete the reference to unfiltered system in (i)(A).

Update completed. Non-substantive change submitted.

Comment # 22	Federal Citation	State Citation	Crosswalk
	141.717(a)(3)(i)	R309-215-15(16)(a)(iii)(A)	Page 51

The symbol prior to the 2nd Log10 is incorrect.

The symbol prior to the 2nd Log10 was corrected by the Division of Administrative Rule and currentl

Comment # 23	Federal Citation	State Citation	Crosswalk
	141.719(b)(2)(v)	R309-215-15(18)(b)(ii)(E)	Page 63

Change the multiplication sign in the equation to a “-“ sign.

Federal Register has a "x" sign in the equation. Has there been a correction to that ?

Comment # 24	Federal Citation	State Citation	Crosswalk
	141.720(b)(2)	R309-215-15(19)(b)(ii)	Page 70

Delete reference to “table”. Change (A)(X) to “0.6”

Update completed. Non-substantive change submitted.

Comment # 25	Federal Citation	State Citation	Crosswalk
	141.722(a)	R309-215-15(21)(a)	Page 73

Delete reference to unfiltered systems

Update completed. Non-substantive change submitted.

Comment # 26	Federal Citation	State Citation	Crosswalk
	142.14, .15, .16	R309-	Page 76

No corresponding state regulations or information was provided for these federal references.

R309. Environmental Quality, Drinking Water.
R309-105. Administration: General Responsibilities of Public Water Systems.
. . .

R309-105-12. Cross Connection Control.

(1) The water supplier shall not allow a connection to his system which may jeopardize its quality and integrity. Cross connections are not allowed unless controlled by an approved and properly operating backflow prevention assembly. The requirements of Chapter 6 of the 2006 [~~2003~~] International Plumbing Code and its amendments as adopted by the Department of Commerce under R156-56 shall be met with respect to cross connection control and backflow prevention.

(2) Each water system shall have a functioning cross connection control program. The program shall consist of five designated elements documented on an annual basis. The elements are:

(a) a legally adopted and functional local authority to enforce a cross connection control program (i.e., ordinance, bylaw or policy);

(b) providing public education or awareness material or presentations;

(c) an operator with adequate training in the area of cross connection control or backflow prevention;

(d) written records of cross connection control activities, such as, backflow assembly inventory; and

(e) test history and documentation of on-going enforcement (hazard assessments and enforcement actions) activities.

(3) Suppliers shall maintain, as proper documentation, an inventory of each pressure atmospheric vacuum breaker, double check valve, reduced pressure zone principle assembly, and high hazard air gap used by their customers, and a service record for each such assembly.

(4) Backflow prevention assemblies shall be inspected and tested at least once a year, by an individual certified for such work as specified in R309-305. Suppliers shall maintain, as proper documentation, records of these inspections. This testing responsibility may be borne by the water system or the water system management may require that the customer having the backflow prevention assembly be responsible for having the device tested.

(5) Suppliers serving areas also served by a pressurized irrigation system shall prevent cross connections between the two. Requirements for pressurized irrigation systems are outlined in Section 19-4-112 of the Utah Code.

. . .

R309-105-17. Record Maintenance.

All public water systems shall retain on their premises or at convenient location near their premises the following records:

(1) Records of microbiological analyses and turbidity

analyses made pursuant to this Section shall be kept for not less than five years. Records of chemical analyses made pursuant to this Section shall be kept for not less than ten years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included:

(a) The date, place and time of sampling, and the name of the person who collected the sample;

(b) Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample or other special purpose sample.

(c) Date of analysis;

(d) Laboratory and person responsible for performing analysis;

(e) The analytical technique/method used; and

(f) The results of the analysis.

(2) Lead and copper recordkeeping requirements.

(a) Any water system subject to the requirements of R309-210-6 shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, Executive Secretary determinations, and any other information required by R309-210-6.

(b) Each water system shall retain the records required by this section for no fewer than 12 years.

(3) Records of action taken by the system to correct violations of primary drinking water regulations shall be kept for a period not less than three years after the last action taken with respect to the particular violation involved.

(4) Copies of any written reports, summaries or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any local, State or Federal agency, shall be kept for a period not less than ten years after completion of the sanitary survey involved.

(5) Records concerning a variance or exemption granted to the system shall be kept for a period ending not less than five years following the expiration of such variance or exemption.

(6) Records that concern the tests of a backflow prevention assembly and location shall be kept by the system for a minimum of not less than five years from the date of the test.

(7) Copies of public notices issued pursuant to R309-220 and certifications made to the Executive Secretary agency pursuant to R309-105-16 shall be kept for three years after issuance.

(8) Copies of monitoring plans developed pursuant to these rules shall be kept for the same period of time as the records of analyses taken under the plan are required to be kept under R309-105-17(1), except as otherwise specified. In all cases the monitoring plans shall be kept as long as the any associated report.

(9) A water system must retain a complete copy of your IDSE report submitted under this section for 10 years after the date that you submitted your IDSE report. If the Executive Secretary

modifies the R309-210-10 monitoring requirements that you recommended in your IDSE report or if the Executive Secretary approves alternative monitoring locations, you must keep a copy of the Executive Secretary=s notification on file for 10 years after the date of the Executive Secretary=s notification. You must make the IDSE report and any Executive Secretary notification available for review by the Executive Secretary or the public.

(10) A water system must retain a complete copy of its 40/30 certification submitted under this R309-210-9 for 10 years after the date that you submitted your certification. You must make the certification, all data upon which the certification is based, and any Executive Secretary notification available for review by the Executive Secretary or the public.

(11) A water subject to the disinfection profiling requirements of R309-215-14 shall keep must keep results of profile (raw data and analysis) indefinitely.

(12) A water system subject to the disinfection benchmarking requirements of R309-215-14 shall keep must keep results of profile (raw data and analysis) indefinitely.

. . .

KEY: drinking water, watershed management
Date of Enactment or Last Substantive Amendment: March 6, 2007
Notice of Continuation: May 16, 2005
Authorizing, and Implemented or Interpreted Law: 19-4-104; 63-46b-4

R309. Environmental Quality, Drinking Water.
R309-110. Administration: Definitions.

. . .

R309-110-4. Definitions.
As used in R309:

. . .

"Presedimentation" is a preliminary treatment process used to remove gravel, sand and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

. . .

"Uncovered finished water storage facility" is a tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens except residual disinfection and is directly open to the atmosphere.

. . .

KEY: drinking water, definitions
Date of Enactment or Last Substantive Amendment: March 6, 2007
Notice of Continuation: May 16, 2005
Authorizing, and Implemented or Interpreted Law: 19-4-104; 63-46b-4

R309. Environmental Quality, Drinking Water.
R309-210. Monitoring and Water Quality: Distribution System Monitoring Requirements.

. . .

R309-210-8. Disinfection Byproducts - Stage 1 Requirements.

(1) General requirements. The requirements in this sub-section establish criteria under which community and non-transient non-community water systems that add a chemical disinfectant to the water in any part of the drinking water treatment process, shall modify their practices to meet MCLs and MRDLs in R309-200-5(3)(c) and meet treatment technique requirements in R309-215-12 and 13. The requirements of this sub-section also establish criteria under which transient non-community water systems that use chlorine dioxide shall modify their practices to meet MRDLs for chlorine dioxide in R309-200-5(3)(c).

(a) Compliance dates.

(i) Community and Non-transient non-community water systems. Surface water systems serving 10,000 or more persons must comply with this section beginning January 1, 2002. Surface water systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this section beginning January 1, 2004.

(ii) Transient non-community water systems. Surface water systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this section beginning January 1, 2002. Surface water systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this section beginning January 1, 2004.

(b) Systems must take all samples during normal operating conditions.

(c) Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with approval from the Executive Secretary.

(d) Failure to monitor in accordance with the monitoring plan required under paragraph (5) of this section is a monitoring violation.

(e) Failure to monitor will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.

(f) Systems may use only data collected under the provisions of this section or the federal Information Collection Rule,(40 CFR, Part 141, Subpart M) to qualify for reduced monitoring.

(2) Monitoring requirements for disinfection byproducts.

(a) TTHMs and HAA5s

(i) Routine monitoring. Systems must monitor at the frequency indicated in the following:

(A) If a system elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

(B) Surface water systems serving at least 10,000 persons shall take four water samples per quarter per treatment plant. At least 25 percent of all samples collected each quarter shall be at locations representing maximum residence time. The remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods.

(C) Surface water systems serving from 500 to 9,999 persons shall take one water sample per quarter per treatment plant at a locations representing maximum residence time.

(D) Surface water systems serving fewer than 500 persons shall take one sample per year per treatment plant during month of warmest water temperature at a location representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets reduced monitoring criteria in paragraph (2)(a)(v) of this section.

(E) Systems using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons shall take one water sample per quarter per treatment plant at a locations representing maximum residence time.

(F) Systems using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons shall take one sample per year per treatment plant during month of warmest water temperature at a location representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets criteria in paragraph (2)(a)(v) of this section for reduced monitoring.

(ii) Systems may reduce monitoring, except as otherwise provided, if the system has monitored for at least one year and is in accordance with the following paragraphs. Any Surface water system serving fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year.

(A) A surface water system serving at least 10,000 persons which has a source water annual average TOC level, before any

treatment, of less than or equal to 4.0 mg/L and has a TTHM annual average of less than or equal to 0.040 mg/L and has a HAA5 annual average of less than or equal to 0.030 mg/L may reduce monitoring to one sample per treatment plant per quarter at a distribution system location reflecting maximum residence time.

(B) A surface water system serving from 500 to 9,999 persons which has a source water annual average TOC level, before any treatment, of less than or equal to 4.0 mg/L and has a TTHM annual average of less than or equal to 0.040 mg/L and has a HAA5 annual average of less than or equal to 0.030 mg/L may reduce monitoring to one sample per treatment plant per year at a distribution system location reflecting maximum residence time during the month of warmest water temperature.

(C) A system using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons that has a TTHM annual average of less than or equal to 0.040 mg/L and has a HAA5 annual average of less than or equal to 0.030 mg/L may reduce monitoring to one sample per treatment plant per year at a distribution system location reflecting maximum residence time during the month of warmest water temperature.

(D) A system using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons that has a TTHM annual average of less than or equal to 0.040 mg/L and has a HAA5 annual average of less than or equal to 0.030 mg/L for two consecutive years or has a TTHM annual average of less than or equal to 0.020 mg/L and has a HAA5 annual average of less than or equal to 0.015mg/L for one year may reduce monitoring to one sample per treatment plant per three year monitoring cycle at a distribution system location reflecting maximum residence time during the month of warmest water temperature, with the three-year cycle beginning on January 1 following the quarter in which the system qualifies for reduced monitoring.

(iii) Monitoring requirements for source water TOC in order to qualify for reduced monitoring for TTHM and HAA5 under paragraph (2)(a)(ii) of this section, surface water systems not monitoring under the provisions of paragraph (d) of this section must take monthly TOC samples every 30 days at a location prior to any treatment, beginning April 1, 2008 or earlier, if specified by the Executive Secretary. In addition to meeting other criteria for reduced monitoring in paragraph (2)(a)(ii) of this section, the source water TOC running annual average must be equal to or less than 4.0 mg/L (based on the most recent four quarters of monitoring) on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under paragraph (2)(a)(ii) of this section, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

(iv) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the

result of the sample (for systems which must monitor no more frequently than annually) is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (2)(a)(i) of this section in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L or 0.045 mg/L for TTHM or HAA5, respectively. For systems using only ground water not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/L or the HAA5 annual average is >0.060 mg/L, the system must go to the increased monitoring identified in paragraph (2)(a)(i) of this section in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/L or 0.060 mg/L for TTHMs or HAA5 respectively.

(v) Systems on increased monitoring may return to routine monitoring if, after at least one year of monitoring their TTHM annual average is less than or equal to 0.060 mg/L and their HAA5 annual average is less than or equal to 0.045 mg/L.

(vi) The Executive Secretary may return a system to routine monitoring when appropriate to protect public health.

(b) Chlorite. Community and non-transient non-community water systems using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

(i) Routine monitoring.

(A) Daily monitoring. Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by paragraph (2)(b)(ii) of this section, in addition to the sample required at the entrance to the distribution system.

(B) Monthly monitoring. Systems must take a three-sample set each month in the distribution system. The system must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under paragraph (2)(b)(ii) of this section to meet the requirement for monitoring in this paragraph.

(ii) Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system is required to take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(iii) Reduced monitoring.

(A) Chlorite monitoring at the entrance to the distribution system required by paragraph (2)(b)(i)(A) of this section may not be reduced.

(B) Chlorite monitoring in the distribution system required by paragraph (2)(b)(i)(B) of this section may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under paragraph (2)(b)(i)(B) of this section has exceeded the chlorite MCL and the system has not been required to conduct monitoring under paragraph (2)(b)(ii) of this section. The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken monthly in the distribution system under paragraph (2)(b)(i)(B) of this section exceeds the chlorite MCL or the system is required to conduct monitoring under paragraph (2)(b)(ii) of this section, at which time the system must revert to routine monitoring.

(c) Bromate.

(i) Routine monitoring. Community and nontransient noncommunity systems using ozone, for disinfection or oxidation, must take one sample per month for each treatment plant in the system using ozone. Systems must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

(ii) Reduced monitoring.

(A) Until March 31, 2009, systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for one year. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/L based upon representative monthly measurements. If the running annual average source water bromide concentration is greater than or equal to 0.05 mg/L, the system must resume routine monitoring required by paragraph (2)(c)(i) of this section in the following month.

(B) Beginning April 1, 2009, systems may no longer use the provisions of paragraph (2)(c)(ii)(A) of this section to qualify for reduced monitoring. A system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration is equal to or less than 0.0025 mg/L based on monthly bromate measurements under paragraph (2)(c)(i) of this section for the most recent four quarters, with samples analyzed using Method 317.0 Revision 2.0, 326.0 or 321.8. If a system has qualified for reduced bromate monitoring under paragraph (2)(c)(ii)(A) of this section, that system may remain on reduced monitoring as long as the running annual average of quarterly bromate samples is less than or equal to 0.0025 mg/L based on samples analyzed using Method 317.0 Revision 2.0, 326.0 or 321.8. If the running annual average bromate concentration is greater than 0.0025 mg/L, the system must resume routine monitoring required by (2)(c)(i) of this section.

(3) Monitoring requirements for disinfectant residuals.

(a) Chlorine and chloramines.

(i) Routine monitoring. Community and nontransient noncommunity water systems that use chlorine or chloramines must

measure the residual disinfectant level in distribution system at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in R309-210-5. The Executive Secretary may allow a public water system which uses both disinfected and undisinfected sources to take disinfectant residual samples at points other than the total coliform sampling points if the Executive Secretary determines that such sampling points are more representative of treated (disinfected) water quality within the distribution system. Water systems shall take a minimum of three residual disinfectant level samples each week.

(ii) In addition, ground water systems shall take the following readings at each facility a minimum of three times a week: the total volume of water treated; the type and amount of disinfectant used in treating the water (clearly indicating the weight if gas feeders are used, or the percent solution and volume fed if liquid feeders are used); and the setting of the rotometer valve or injector pump. Surface water systems may use the results of residual disinfectant concentration sampling conducted under R309-215-10(3) for systems which filter, in lieu of taking separate samples.

(iii) Reduced monitoring. Monitoring may not be reduced.

(b) Chlorine Dioxide.

(i) Routine monitoring. Community, nontransient noncommunity, and transient noncommunity water systems that use chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system must take samples in the distribution system the following day at the locations required by paragraph (3)(b)(ii) of this section, in addition to the sample required at the entrance to the distribution system.

(ii) Additional monitoring. On each day following a routine sample monitoring result that exceeds the MRDL, the system is required to take three chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system must take three samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system must take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(iii) Reduced monitoring. Chlorine dioxide monitoring may not be reduced.

(4) Bromide. Systems required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the

system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one year. The system must continue bromide monitoring to remain on reduced bromate monitoring.

(5) Monitoring plans. Each system required to monitor under this section must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the Executive Secretary and the general public no later than 30 days following the applicable compliance dates in R309-210-8(1)(a). All Surface water systems serving more than 3300 people must submit a copy of the monitoring plan to the Executive Secretary no later than the date of the first report required under R309-105-16(2). The Executive Secretary may also require the plan to be submitted by any other system. After review, the Executive Secretary may require changes in any plan elements. The plan must include at least the following elements.

(a) Specific locations and schedules for collecting samples for any parameters included in this subpart.

(b) How the system will calculate compliance with MCLs, MRDLs, and treatment techniques.

(c) If approved for monitoring as a consecutive system, or if providing water to a consecutive system, the Executive Secretary may modify the monitoring requirements treating the systems as a single distribution system, however, the sampling plan shall reflect the entire distribution system of all interconnected systems.

(6) Compliance requirements.

(a) General requirements.

(i) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

(ii) All samples taken and analyzed under the provisions of this section shall be included in determining compliance, even if that number is greater than the minimum required.

(iii) If, during the first year of monitoring under R309-210-8, any individual quarter's average will cause the running annual average of that system to exceed the MCL, the system is out of compliance at the end of that quarter.

(b) Disinfection byproducts.

(i) TTHMs and HAA5.

(A) For systems monitoring quarterly, compliance with MCLs in R309-200-5(3)(c) shall be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed by R309-210-8(2)(a).

(B) For systems monitoring less frequently than quarterly,

systems demonstrate MCL compliance if the average of samples taken that year under the provisions of R309-210-8(2)(a) does not exceed the MCLs in R309-200-5(3)(c). If the average of these samples exceeds the MCL, the system shall increase monitoring to once per quarter per treatment plant and such a system is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase monitoring frequency to quarterly monitoring shall calculate compliance by including the sample which triggered the increased monitoring plus the following three quarters of monitoring.

(C) If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to R309-220, in addition to reporting to the Executive Secretary pursuant to R309-105-16.

(D) If a PWS fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(ii) Chlorite. Compliance shall be based on an arithmetic average of each three sample set taken in the distribution system as prescribed by R309-210-8(2)(b)(i)(B) and (2)(b)(ii). If the arithmetic average of any three sample sets exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to R309-220, in addition to reporting to the Executive Secretary pursuant to R309-105-16.

(iii) Bromate. Compliance shall be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by R309-210-8(2)(c). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to R309-220, in addition to reporting to the Executive Secretary pursuant to R309-105-16. If a PWS fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(c) Disinfectant residuals.

(i) Chlorine and chloramines.

(A) Compliance shall be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under R309-210-8(3)(a). If the average covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and shall notify the public pursuant to R309-220, in addition to reporting to the Executive Secretary pursuant to R309-105-16.

(B) In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance shall be determined by including together all

monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to R309-105-16 shall clearly indicate which residual disinfectant was analyzed for each sample.

(ii) Chlorine dioxide.

(A) Acute violations. Compliance shall be based on consecutive daily samples collected by the system under R309-210-8(3)(b). If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL and shall notify the public pursuant to the procedures for acute health risks in R309-220-5. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system shall notify the public of the violation in accordance with the provisions for acute violations under R309-220-5 in addition to reporting the Executive Secretary pursuant to R309-105-16.

(B) Nonacute violations. Compliance shall be based on consecutive daily samples collected by the system under R309-210-8(3)(b). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and shall take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the procedures for nonacute health risks in R309-220-6 in addition to reporting to the Executive Secretary pursuant to R309-105-16. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system shall notify the public of the violation in accordance with the provisions for nonacute violations under R309-220-6 in addition to reporting to the Executive Secretary pursuant to R309-105-16.

R309-210-9. Disinfection Byproducts—Initial Distribution System Evaluations.

(1) General requirements.

(a) The requirements of this sub-section establish monitoring and other requirements for identifying R309-210-10 compliance monitoring locations for determining compliance with maximum contaminant levels for total trihalomethanes (TTHM) and haloacetic acids (five)(HAA5). The water system must use an Initial Distribution System Evaluation (IDSE) to determine locations with representative high TTHM and HAA5 concentrations throughout the distribution system. IDSEs are used in conjunction with, but separate from, R309-210-8 compliance monitoring, to identify and select R309-210-10 compliance monitoring locations.

(b) Applicability. Community water systems that uses a primary or residual disinfectant other than ultraviolet light or

delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light; or if the system is a [~~and~~] non-transient non-community water systems that serves at least 10,000 people and uses a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light are subject to these requirements.

(c) Schedule. The water system must comply with the requirements of this subpart on the schedule in [~~the table in this~~] paragraph (c)(i).

(i) For water systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system.

(A) For water systems that serve a population greater than or equal to 100,000:

(I) The water system must submit a standard monitoring plan or system specific study plan or 40/30 certification to the Executive Secretary by or receive very small system waiver from the Executive Secretary by October 1, 2006.

(II) The water system must complete the standard monitoring or system specific study by September 30, 2008.

(III) The water system must submit the IDSE report to the Executive Secretary by January 1, 2009.

(B) For water systems that serve a population from 50,000 to 99,999:

(I) The water system must submit a standard monitoring plan or system specific study plan or 40/30 certification to the Executive Secretary by or receive very small system waiver from the Executive Secretary by April 1, 2007.

(II) The water system must complete the standard monitoring or system specific study by March 31, 2009.

(III) The water system must submit the IDSE report to the Executive Secretary by July 1, 2009.

(C) For water systems that serve a population from 10,000 to 49,999:

(I) The water system must submit a standard monitoring plan or system specific study plan or 40/30 certification to the Executive Secretary by or receive very small system waiver from the Executive Secretary by October 1, 2007.

(II) The water system must complete the standard monitoring or system specific study by September 30, 2009.

(III) The water system must submit the IDSE report to the Executive Secretary by January 1, 2010.

(D) For community water systems that serve a population less than 10,000:

(I) The water system must submit a standard monitoring plan or system specific study plan or 40/30 certification to the Executive Secretary by or receive very small system waiver from the Executive Secretary by April 1, 2008.

(II) The water system must complete the standard monitoring or system specific study by March 31, 2010.

(III) The water system must submit the IDSE report to the Executive Secretary by July 1, 2010.

(ii) For other water systems that are part of a combined distribution system:

(A) For wholesale systems or consecutive systems:

(I) The water system must submit a standard monitoring plan or system specific study plan or 40/30 certification to the Executive Secretary by or receive very small system waiver from the Executive Secretary at the same time as the system with the earliest compliance date in the combined distribution system.

(II) The water system must complete the standard monitoring or system specific study at the same time as the system with the earliest compliance date in the combined distribution system.

(III) The water system must submit the IDSE report to the Executive Secretary by at the same time as the system with the earliest compliance date in the combined distribution system.

(iii) If, within 12 months after the date the water is required to submit the information in (i)(A)(I), (B)(I), (C)(I), (D)(I) and (ii)(A)(I) above, the Executive Secretary does not approve the water system plan or notify the water system that it has not yet completed its review, the water system may consider the plan that was submitted as approved. The water system must implement that plan and must complete standard monitoring or a system specific study no later than the date identified in (i)(A)(II), (B)(II), (C)(II), (D)(II) and (ii)(A)(II) above.

(iv) The water system must submit the 40/30 certification under R309-210-9(4) by the date identified in (i)(A)(II), (B)(II), (C)(II), (D)(II) and (ii)(A)(II) above. [~~indicated.~~]

(v) If, within three months after the date identified in (i)(A)(III), (B)(III), (C)(III), (D)(III) and (ii)(A)(III) above (nine months after the date identified in this column if the water system must comply on the schedule in paragraph (c)(i)(C) of this section), the Executive Secretary does not approve the IDSE report or notify the water system that it has not yet completed its review, the water system may consider the report submitted as approved and must implement the recommended R309-210-10 monitoring as required.

(vi) For the purpose of the schedule in paragraph (c)(i) through (c)(v) of this section, the Executive Secretary may determine that the combined distribution system does not include certain consecutive systems based on factors such as receiving water from a wholesale system only on an emergency basis or receiving only a small percentage and small volume of water from a wholesale system. The Executive Secretary may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivering water to a consecutive system only on an emergency basis or delivering only a small percentage and small volume of water to a consecutive system.

(d) The water system must conduct standard monitoring that meets the requirements in R309-210-9(2), or a system specific study that meets the requirements in R309-210-9(3), or certify to the Executive Secretary that the water system meet 40/30 certification criteria under R309-210-9(4), or qualify for a very small system waiver under R309-210-9(5).

(i) The water system must have taken the full complement of routine TTHM and HAA5 compliance samples required of a system with the population and source water under R309-210-8 (or the water system must have taken the full complement of reduced TTHM and HAA5 compliance samples required of a system with the population and source water under R309-210-8 if the water system meets reduced monitoring criteria under R309-210-8) during the period specified in R309-210-9(4)(a) to meet the 40/ 30 certification criteria in R309-210-9(4) the water system must have taken TTHM and HAA5 samples under R309-200-4(3) and R309-210-8 to be eligible for the very small system waiver in R309-210-9(5).

(ii) If the water system has not taken the required samples, the water system must conduct standard monitoring that meets the requirements in R309-210-9(2), or a system specific study that meets the requirements in R309-210-9(3).

(e) The water system must use only the analytical methods specified in R309-200-4(3), or otherwise approved by EPA for monitoring under this subpart, to demonstrate compliance with the requirements of this subpart.

(f) IDSE results will not be used for the purpose of determining compliance with MCLs in R309-200-5(3)(c).

(2) Standard monitoring.

(a) Standard monitoring plan. The standard monitoring plan must comply with paragraphs (a)(i) through (a)(iv) of this section. The water system must prepare and submit the standard monitoring plan to the Executive Secretary according to the schedule in R309-210-9(1)(c).

(i) The standard monitoring plan must include a schematic of the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating locations and dates of all projected standard monitoring, and all projected R309-210-8 compliance monitoring.

(ii) The standard monitoring plan must include justification of standard monitoring location selection and a summary of data the water system relied on to justify standard monitoring location selection.

(iii) The standard monitoring plan must specify the population served and system type (surface water or ground water).

(iv) The water system must retain a complete copy of the standard monitoring plan submitted under this paragraph (a), including any Executive Secretary modification of the standard monitoring plan, for as long as the water system is required to retain the IDSE report under R309-105-17(8).

(b) Standard monitoring.

(i) The water system must monitor as indicated in [~~the table in this~~] paragraph (b)(i). The water system must collect dual sample sets at each monitoring location. One sample in the dual sample set must be analyzed for TTHM. The other sample in the dual sample set must be analyzed for HAA5. The water system must conduct one monitoring period during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature. The water system must review available compliance, study, or operational data to determine the peak historical month

for TTHM or HAA5 levels or warmest water temperature.

(A) Surface water systems serving less than 500 population which are consecutive systems.

(I) One monitoring period per year, dual sample sets must be taken during the peak historical month. Two dual samples sets must be collected per monitoring period.

(II) One dual sample set must be taken at the high TTHM location in the distribution system.

(III) One dual sample set must be taken near the entry point of the disinfected water into the distribution system.

(B) Surface water systems serving less than 500 population which are non-consecutive systems.

(I) One monitoring period per year, dual sample sets must be taken during the peak historical month. Two dual samples sets must be collected per monitoring period.

(II) One dual sample set must be taken at the high TTHM location in the distribution system.

(III) One dual sample set must be taken at the high HAA5 location in the distribution system.

(C) Surface water systems serving between 500 to 3,300 population which are consecutive systems.

(I) Four monitoring periods per year, dual sample sets must be taken every 90 days. Two dual samples sets must be collected per monitoring period.

(II) One dual sample set must be taken at the high TTHM location in the distribution system.

(III) One dual sample set must be taken near the entry point of the disinfected water into the distribution system.

(D) Surface water systems serving between 500 to 3,300 population which are non-consecutive systems.

(I) Four monitoring periods per year, dual sample sets must be taken every 90 days. Two dual samples sets must be collected per monitoring period.

(II) One dual sample set must be taken at the high TTHM location in the distribution system.

(III) One dual sample set must be taken at the high HAA5 location in the distribution system.

(E) Surface water systems serving between 3,301 to 9,999 population.

(I) Four monitoring periods per year, dual sample sets must be taken every 90 days. Four dual samples sets must be collected per monitoring period.

(II) Two dual sample sets must be taken at the high TTHM locations in the distribution system.

(III) One dual sample set must be taken at the high HAA5 location in the distribution system.

(IV) One dual sample set must be taken at an average residence time of[~~or~~] the disinfected water in the distribution system.

(F) Surface water systems serving between 10,000 to 49,999 population.

(I) Six monitoring periods per year, dual sample sets must be taken every 60 days. Eight dual samples sets must be collected

per monitoring period.

(II) Three dual sample sets must be taken at the high TTHM locations in the distribution system.

(III) Two dual sample sets must be taken at the high HAA5 locations in the distribution system.

(IV) Two dual sample sets must be taken at an average residence time of[or] the disinfected water in the distribution system.

(V) One dual sample set must be taken near the entry point of the disinfected water into the distribution system.

(G) Surface water systems serving between 50,000 to 249,999 population.

(I) Six monitoring periods per year, dual sample sets must be taken every 60 days. 16 dual samples sets must be collected per monitoring period.

(II) Five dual sample sets must be taken at the high TTHM locations in the distribution system.

(III) Four dual sample sets must be taken at the high HAA5 locations in the distribution system.

(IV) Four dual sample sets must be taken at an average residence time of[or] the disinfected water in the distribution system.

(V) Three dual sample sets must be taken near the entry point of the disinfected water into the distribution system.

(H) Surface water systems serving between 250,000 to 999,999 population.

(I) Six monitoring periods per year, dual sample sets must be taken every 60 days. 24 dual samples sets must be collected per monitoring period.

(II) Eight dual sample sets must be taken at the high TTHM locations in the distribution system.

(III) Six dual sample sets must be taken at the high HAA5 locations in the distribution system.

(IV) Six dual sample sets must be taken at an average residence time of[or] the disinfected water in the distribution system.

(V) Four dual sample sets must be taken near the entry point of the disinfected water into the distribution system.

(I) Surface water systems serving between 1,000,000 to 4,999,999 population.

(I) Six monitoring periods per year, dual sample sets must be taken every 60 days. 32 dual samples sets must be collected per monitoring period.

(II) Ten dual sample sets must be taken at the high TTHM locations in the distribution system.

(III) Eight dual sample sets must be taken at the high HAA5 locations in the distribution system.

(IV) Eight dual sample sets must be taken at an average residence time of[or] the disinfected water in the distribution system.

(V) Six dual sample sets must be taken near the entry point of the disinfected water into the distribution system.

(J) Surface water systems serving 5,000,000 or more

of the disinfected water into the distribution system.

(O) Ground water systems serving between 100,000 to 499,999 population.

(I) Four monitoring periods per year, dual sample sets must be taken every 90 days. Eight dual samples sets must be collected per monitoring period.

(II) Three dual sample sets must be taken at the high TTHM locations in the distribution system.

(III) Three dual sample sets must be taken at the high HAA5 locations in the distribution system.

(IV) One dual sample set must be taken at an average residence time of[~~or~~] the disinfected water in the distribution system.

(V) One dual sample set must be taken near the entry point of the disinfected water into the distribution system.

(P) Ground water systems serving 500,000 or greater population.

(I) Four monitoring periods per year, dual sample sets must be taken every 90 days. Twelve dual samples sets must be collected per monitoring period.

(II) Four dual sample sets must be taken at the high TTHM locations in the distribution system.

(III) Four dual sample sets must be taken at the high HAA5 locations in the distribution system.

(IV) Two dual sample sets must be taken at an average residence time of[~~or~~] the disinfected water in the distribution system.

(V) Two dual sample sets must be taken near the entry point of the disinfected water into the distribution system.

(Q) A dual sample set (i.e., a TTHM and an HAA5 sample) must be taken at each monitoring location during each monitoring period.

(R) The peak historical month is the month with the highest TTHM or HAA5 levels or the warmest water temperature.

(ii) The water system must take samples at locations other than the existing R309-210-8 monitoring locations. Monitoring locations must be distributed throughout the distribution system.

(iii) If the number of entry points to the distribution system is fewer than the specified number of entry point monitoring locations, excess entry point samples must be replaced equally at high TTHM and HAA5 locations. If there is an odd extra location number, the water system must take a sample at a high TTHM location. If the number of entry points to the distribution system is more than the specified number of entry point monitoring locations, the water system must take samples at entry points to the distribution system having the highest annual water flows.

(iv) The system monitoring under this paragraph (b) may not be reduced under the provisions of R309-105-5(2).

(c) IDSE report. The IDSE report must include the elements required in paragraphs (c)(i) through (c)(iv) of this section. The water system must submit the IDSE report to the Executive Secretary according to the schedule in R309-210-9(1)(c).

(i) The IDSE report must include all TTHM and HAA5

analytical results from R309-210-8 compliance monitoring and all standard monitoring conducted during the period of the IDSE as individual analytical results and LRAAs presented in a tabular or spreadsheet format acceptable to the Executive Secretary. If changed from the standard monitoring plan submitted under paragraph (a) of this section, the report must also include a schematic of the distribution system, the population served, and system type (surface water or ground water).

(ii) The IDSE report must include an explanation of any deviations from the approved standard monitoring plan.

(iii) The water system must recommend and justify R309-210-10 compliance monitoring locations and timing based on the protocol in R309-210-9(6).

(iv) The water system must retain a complete copy of the IDSE report submitted under this section for 10 years after the date that the water system submitted the report. If the Executive Secretary modifies the R309-210-10 monitoring requirements that the water system recommended in the IDSE report or if the Executive Secretary approves alternative monitoring locations, the water system must keep a copy of the Executive Secretary's notification on file for 10 years after the date of the Executive Secretary's notification. The water system must make the IDSE report and any Executive Secretary notification available for review by the Executive Secretary or the public.

(3) System specific studies.

(a) System specific study plan. The water system specific study plan must be based on either existing monitoring results as required under paragraph (a)(i) of this section or modeling as required under paragraph (a)(ii) of this section. The water system must prepare and submit the system specific study plan to the Executive Secretary according to the schedule in R309-210-9(1)(c).

(i) Existing monitoring results. The water system may comply by submitting monitoring results collected before the water system is [~~are~~] required to begin monitoring under R309-210-9(1)(c). The monitoring results and analysis must meet the criteria in paragraphs (a)(i)(A) and (a)(i)(B) of this section.

(A) Minimum requirements.

(I) TTHM and HAA5 results must be based on samples collected and analyzed in accordance with R309-200-4(3). Samples must be collected no earlier than five years prior to the study plan submission date.

(II) The monitoring locations and frequency must meet the conditions identified in this paragraph (a)(i)(A)(II). Each location must be sampled once during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature for every 12 months of data submitted for that location. Monitoring results must include all R309-210-8 compliance monitoring results plus additional monitoring results as necessary to meet minimum sample requirements.

(III) Surface water systems serving a population less than 500 shall have data from:

(aa) three monitoring locations; and

(bb) three samples for each TTHM and HAA5.

(IV) Surface water systems serving a population between 500 to 3,300 shall have data from:

(aa) three monitoring locations; and

(bb) nine samples each for TTHM and HAA5.

(V) Surface water systems serving a population between 3,301 to 9,999 shall have data from:

(aa) six monitoring locations; and

(bb) 36 samples each for TTHM and HAA5.

(VI) Surface water systems serving a population between 10,000 to 49,999 shall have data from:

(aa) 12 monitoring locations; and

(bb) 72 samples each for TTHM and HAA5.

(VII) Surface water systems serving a population between 50,000 to 249,999 shall have data from:

(aa) 24 monitoring locations; and

(bb) 144 samples each for TTHM and HAA5.

(VIII) Surface water systems serving a population between 250,000 to 999,999 shall have data from:

(aa) 36 monitoring locations; and

(bb) 216 samples each for TTHM and HAA5.

(IX) Surface water systems serving a population between 1,000,000 to 4,999,999 shall have data from:

(aa) 48 monitoring locations; and

(bb) 288 samples each for TTHM and HAA5.

(X) Surface water systems serving a population 5,000,000 or greater shall have data from:

(aa) 60 monitoring locations; and

(bb) 360 samples each for TTHM and HAA5.

(XI) Ground water systems serving a population less than 500 shall have data from:

(aa) three monitoring locations; and

(bb) three samples for each TTHM and HAA5.

(XII) Ground water systems serving a population between 500 to 9,999 shall have data from:

(aa) three monitoring locations; and

(bb) nine samples each for TTHM and HAA5.

(XIII) Ground water systems serving a population between 10,000 to 99,999 shall have data from:

(aa) 12 monitoring locations; and

(bb) 48 samples each for TTHM and HAA5.

(XIV) Ground water systems serving a population between 100,000 to 499,999 shall have data from:

(aa) 18 monitoring locations; and

(bb) 72 samples each for TTHM and HAA5.

(XV) Ground water systems serving a population of 500,000 or greater shall have data from:

(aa) 24 monitoring locations; and

(bb) 96 samples each for TTHM and HAA5.

(B) Reporting monitoring results. The water system must report the information in this paragraph (a)(i)(B).

(I) The water system must report previously collected monitoring results and certify that the reported monitoring results include all compliance and non-compliance results

generated during the time period beginning with the first reported result and ending with the most recent R309-210-8 results.

(II) The water system must certify that the samples were representative of the entire distribution system and that treatment, and distribution system have not changed significantly since the samples were collected.

(III) The study monitoring plan must include a schematic of the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating the locations and dates of all completed or planned system specific study monitoring.

(IV) The water system specific study plan must specify the population served and system type (surface water or ground water).

(V) The water system must retain a complete copy of the system specific study plan submitted under this paragraph (a)(i), including any Executive Secretary modification of the system specific study plan, for as long as the water system is required to retain the IDSE report under paragraph (b)(v) of this section.

(VI) If the water system submits previously collected data that fully meet the number of samples required under paragraph (a)(i)(A)(II) of this section and the Executive Secretary rejects some of the data, the water system must either conduct additional monitoring to replace rejected data on a schedule the Executive Secretary approves or conduct standard monitoring under R309-210-9(2).

(ii) Modeling. The water system may comply through analysis of an extended period simulation hydraulic model. The extended period simulation hydraulic model and analysis must meet the criteria in this paragraph (a)(ii).

(A) Minimum requirements. (I) The model must simulate 24 hour variation in demand and show a consistently repeating 24 hour pattern of residence time.

(II) The model must represent the criteria listed in paragraphs (a)(ii)(A)(II)(aa) through (ii) of this section.

(aa) 75% of pipe volume;

(bb) 50% of pipe length;

(cc) All pressure zones;

(dd) All 12-inch diameter and larger pipes;

(ee) All 8-inch and larger pipes that connect pressure zones, influence zones from different sources, storage facilities, major demand areas, pumps, and control valves, or are known or expected to be significant conveyors of water;

(ff) All 6-inch and larger pipes that connect remote areas of a distribution system to the main portion of the system;

(gg) All storage facilities with standard operations represented in the model; and

(hh) All active pump stations with controls represented in the model; and

(ii) All active control valves.

(III) The model must be calibrated, or have calibration plans, for the current configuration of the distribution system during the period of high TTHM formation potential. All storage facilities must be evaluated as part of the calibration process.

All required calibration must be completed no later than 12 months after plan submission.

(B) Reporting modeling. The system specific study plan must include the information in this paragraph (a)(ii)(B).

(I) Tabular or spreadsheet data demonstrating that the model meets requirements in paragraph (a)(ii)(A)(II) of this section.

(II) A description of all calibration activities undertaken, and if calibration is complete, a graph of predicted tank levels versus measured tank levels for the storage facility with the highest residence time in each pressure zone, and a time series graph of the residence time at the longest residence time storage facility in the distribution system showing the predictions for the entire simulation period (i.e., from time zero until the time it takes to for the model to reach a consistently repeating pattern of residence time).

(III) Model output showing preliminary 24 hour average residence time predictions throughout the distribution system.

(IV) Timing and number of samples representative of the distribution system planned for at least one monitoring period of TTHM and HAA5 dual sample monitoring at a number of locations no less than would be required for the system under standard monitoring in R309-210-9(2) during the historical month of high TTHM. These samples must be taken at locations other than existing R309-210-8 compliance monitoring locations.

(V) Description of how all requirements will be completed no later than 12 months after the water system submits the system specific study plan.

(VI) Schematic of the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating the locations and dates of all completed system specific study monitoring (if calibration is complete) and all R309-210-8 compliance monitoring.

(VII) Population served and system type (surface water or ground water).

(VIII) The water system must retain a complete copy of the system specific study plan submitted under this paragraph (a)(ii), including any Executive Secretary modification of the system specific study plan, for as long as the water system is required to retain the IDSE report under paragraph (b)(vii) of this section.

(C) If the water system submits a model that does not fully meet the requirements under paragraph (a)(ii) of this section, the water system must correct the deficiencies and respond to Executive Secretary inquiries concerning the model. If the water system fails to correct deficiencies or respond to inquiries to the Executive Secretary’s satisfaction, the water system must conduct standard monitoring under R309-210-9(2).

(b) IDSE report. The IDSE report must include the elements required in paragraphs (b)(i) through (b)(vi) of this section. The water system must submit the IDSE report according to the schedule in R309-210-9(1)(c).

(i) The IDSE report must include all TTHM and HAA5 analytical results from R309-210-8 compliance monitoring and all

population.

(I) Six monitoring periods per year, dual sample sets must be taken every 60 days. 40 dual samples sets must be collected per monitoring period.

(II) Twelve[~~Ten~~] dual sample sets must be taken at the high TTHM locations in the distribution system.

(III) Ten[~~Eight~~] dual sample sets must be taken at the high HAA5 locations in the distribution system.

(IV) Eight dual sample sets must be taken at an average residence time of[or] the disinfected water in the distribution system.

(V) Eight[~~Six~~] dual sample sets must be taken near the entry point of the disinfected water into the distribution system.

(K) Ground water systems serving less than 500 population which are consecutive systems.

(I) One monitoring period per year, dual sample sets must be taken during the peak historical month. Two dual samples sets must be collected per monitoring period.

(II) One dual sample set must be taken at the high TTHM location in the distribution system.

(III) One dual sample set must be taken near the entry point of the disinfected water into the distribution system.

(L) Ground water systems serving less than 500 population which are non-consecutive systems.

(I) One monitoring period per year, dual sample sets must be taken during the peak historical month. Two dual samples sets must be collected per monitoring period.

(II) One dual sample set must be taken at the high TTHM location in the distribution system.

(III) One dual sample set must be taken at the high HAA5 location in the distribution system.

(M) Ground water systems serving between 500 to 9,999 population.

(I) Four monitoring periods per year, dual sample sets must be taken every 90 days. Two dual samples sets must be collected per monitoring period.

(II) One dual sample set must be taken at the high TTHM location in the distribution system.

(III) One dual sample set must be taken at the high HAA5 location in the distribution system.

(N) Ground water systems serving between 10,000 to 99,999 population.

(I) Four[~~Six~~] monitoring periods per year, dual sample sets must be taken every 90[~~60~~] days. Six dual samples sets must be collected per monitoring period.

(II) Two dual sample sets must be taken at the high TTHM locations in the distribution system.

(III) Two dual sample sets must be taken at the high HAA5 locations in the distribution system.

(IV) One dual sample set must be taken at an average residence time of[~~or~~] the disinfected water in the distribution system.

(V) One dual sample set must be taken near the entry point

system specific study monitoring conducted during the period of the system specific study presented in a tabular or spreadsheet format acceptable to the Executive Secretary. If changed from the system specific study plan submitted under paragraph (a) of this section, the IDSE report must also include a schematic of the distribution system, the population served, and system type (surface water or ground water).

(ii) If the water system used the modeling provision under paragraph (a)(ii) of this section, the water system must include final information for the elements described in paragraph (a)(ii)(B) of this section, and a 24-hour time series graph of residence time for each R309-210-10 compliance monitoring location selected.

(iii) The water system must recommend and justify R309-210-10 compliance monitoring locations and timing based on the protocol in R309-210-9(6).

(iv) The IDSE report must include an explanation of any deviations from the approved system specific study plan.

(v) The IDSE report must include the basis (analytical and modeling results) and justification the water system used to select the recommended R309-210-10 monitoring locations.

(vi) The water system may submit the IDSE report in lieu of the system specific study plan on the schedule identified in R309-210-9(1) (c) for submission of the system specific study plan if the water system believes that it has the necessary information by the time that the system specific study plan is due. If the water system elects this approach, the IDSE report must also include all information required under paragraph (a) of this section.

(vii) The water system must retain a complete copy of the IDSE report submitted under this section for 10 years after the date the water system submitted the IDSE report. If the Executive Secretary modifies the R309-210-10 monitoring requirements the water system recommended in the IDSE report or if the Executive Secretary approves alternative monitoring locations, the water system must keep a copy of the Executive Secretary's notification on file for 10 years after the date of the Executive Secretary's notification. The water system must make the IDSE report and any Executive Secretary notification available for review by the Executive Secretary or the public.

(4) 40/30 certification.

(a) Eligibility. The water system is eligible for 40/ 30 certification if it had no TTHM or HAA5 monitoring violations under R309-210-8 of this part and no individual sample exceeded 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 during an eight consecutive calendar quarter period beginning no earlier than the date specified in this paragraph (a).

(i) If the 40/30 certification is due October 1, 2006 then the eligibility for 40/30 certification is based on eight consecutive calendar quarters of R309-210-8 compliance monitoring results beginning no earlier than January 2004.

(ii) If the 40/30 certification is due April 1, 2007 then the eligibility for 40/30 certification is based on eight consecutive calendar quarters of R309-210-8 compliance monitoring

results beginning no earlier than January 2004.

(iii) If the 40/30 certification is due October 1, 2007 then the eligibility for 40/30 certification is based on eight consecutive calendar quarters of R309-210-8 compliance monitoring results beginning no earlier than January 2005.

(iv) If the 40/30 certification is due April 1, 2008 then the eligibility for 40/30 certification is based on eight consecutive calendar quarters of R309-210-8 compliance monitoring results beginning no earlier than January 2005.

(v) Unless the water system is on reduced monitoring under R309-210-8 of this part and were not required to monitor during the specified period. If the water system did not monitor during the specified period, the water system must base its eligibility on compliance samples taken during the 12 months preceding the specified period.

(b) 40/30 certification.

(i) The water system must certify to the Executive Secretary that every individual compliance sample taken under R309-210-8 of this part during the periods specified in paragraph (a) of this section were ≤0.040 mg/L for TTHM and ≤0.030 mg/L for HAA5, and that the water system did not have any TTHM or HAA5 monitoring violations during the period specified in paragraph (a) of this section.

(ii) The Executive Secretary may require the water system to submit compliance monitoring results, distribution system schematics, and/or recommended R309-210-10 compliance monitoring locations in addition to the certification. If the water system fails to submit the requested information, the Executive Secretary may require standard monitoring under R309-210-9(2) or a system specific study under R309-210-9(3).

(iii) The Executive Secretary may still require standard monitoring under R309-210-9(2) or a system specific study under R309-210-9(3) even if the water system meets the criteria in paragraph (a) of this section.

(iv) A water system must retain a complete copy of its certification submitted under this section for 10 years after the date that the water system submitted the certification. The water system must make the certification, all data upon which the certification is based, and any Executive Secretary notification available for review by the Executive Secretary or the public.

(5) Very small system waivers.

(a) If the water system serves fewer than 500 people and it has taken TTHM and HAA5 samples under R309-210-8, the water system is not required to comply with this subpart unless the Executive Secretary notifies the water system that it must conduct standard monitoring under R309-210-9(2) or a system specific study under R309-210-9(3).

(b) If the water system has not taken TTHM and HAA5 samples under R309-210-8 or if the Executive Secretary notifies the water system that the water system must comply with this subpart, the water system must conduct standard monitoring under R309-210-9(2) or a system specific study under R309-210-9(3).

(6) Stage 2 (R309-210-10) compliance monitoring location recommendations.

(a) The IDSE report must include the recommendations and justification for where and during what month(s) TTHM and HAA5 monitoring for R309-210-10 of this part should be conducted. The water system must base the recommendations on the criteria in paragraphs (b) through (e) of this section.

(b) The water system must select the number of monitoring locations specified in this paragraph (b). The water system will use these recommended locations as R309-210-10 routine compliance monitoring locations, unless Executive Secretary requires different or additional locations. The water system should distribute locations throughout the distribution system to the extent possible.

(i) Surface water systems serving less than 500.

(A) One monitoring period per year. Two dual samples sets must be collected per monitoring period.

(B) One dual sample set must be taken at the high TTHM location in the distribution system.

(C) One dual sample set must be taken at the high HAA5 location in the distribution system.

(ii) Surface water systems serving between 500 to 3,300.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 days. Two dual samples sets must be collected per monitoring period.

(B) One dual sample set must be taken at the high TTHM location in the distribution system.

(C) One dual sample set must be taken at the high HAA5 location in the distribution system.

(iii) Surface water systems serving between 3,301 to 9,999 population.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 days. Two dual samples sets must be collected per monitoring period.

(B) One dual sample set must be taken at the high TTHM locations in the distribution system.

(C) One dual sample set must be taken at the high HAA5 location in the distribution system.

(iv) Surface water systems serving between 10,000 to 49,999 population.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 [~~60~~] days. Four dual samples sets must be collected per monitoring period.

(B) Two dual sample sets must be taken at the high TTHM locations in the distribution system.

(C) One dual sample set must be taken at the high HAA5 locations in the distribution system.

(D) One dual sample set must be taken at an existing R309-210-8 compliance location.

(v) Surface water systems serving between 50,000 to 249,999 population.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 days. Eight dual samples sets must be collected

per monitoring period.

(B) Three dual sample sets must be taken at the high TTHM locations in the distribution system.

(C) Three dual sample sets must be taken at the high HAA5 locations in the distribution system.

(D) Two dual samples sets must be taken at an existing R309-210-8 compliance location.

(vi) Surface water systems serving between 250,000 to 999,999 population.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 days. 12 dual samples sets must be collected per monitoring period.

(B) Five dual sample sets must be taken at the high TTHM locations in the distribution system.

(C) Four dual sample sets must be taken at the high HAA5 locations in the distribution system.

(D) Three dual sample sets must be taken at an existing R309-210-8 compliance location.

(vii) Surface water systems serving between 1,000,000 to 4,999,999 population.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 days. 16 dual samples sets must be collected per monitoring period.

(B) Six dual sample sets must be taken at the high TTHM locations in the distribution system.

(C) Six dual sample sets must be taken at the high HAA5 locations in the distribution system.

(D) Four dual sample sets must be taken at an existing R309-210-8 compliance location.

(viii) Surface water systems serving 5,000,000 or more population.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 days. 20 dual samples sets must be collected per monitoring period.

(B) Eight dual sample sets must be taken at the high TTHM locations in the distribution system.

(C) Seven dual sample sets must be taken at the high HAA5 locations in the distribution system.

(D) Five dual sample sets must be taken at an existing R309-210-8 compliance location.

(ix) Ground water systems serving less than 500.

(A) One monitoring period per year. Two dual samples sets must be collected per monitoring period.

(B) One dual sample set must be taken at the high TTHM location in the distribution system.

(C) One dual sample set must be taken at the high HAA5 location in the distribution system.

(x) Ground water systems serving between 500 to 9,999 population.

(A) One monitoring period per year. Two dual samples sets must be collected per monitoring period.

(B) One dual sample set must be taken at the high TTHM location in the distribution system.

(C) One dual sample set must be taken at the high HAA5 location in the distribution system.

(xi) Ground water systems serving between 10,000 to 99,999 population.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 days. Four dual samples sets must be collected per monitoring period.

(B) Two dual sample sets must be taken at the high TTHM locations in the distribution system.

(C) One dual sample set must be taken at the high HAA5 locations in the distribution system.

(D) One dual sample set must be taken at an existing R309-210-8 compliance location.

(xii) Ground water systems serving between 100,000 to 499,999 population.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 days. Six dual samples sets must be collected per monitoring period.

(B) Three dual sample sets must be taken at the high TTHM locations in the distribution system.

(C) Two dual sample sets must be taken at the high HAA5 locations in the distribution system.

(D) One dual sample set must be taken at an existing R309-210-8 compliance location.

(xiii) Ground water systems serving 500,000 or greater population.

(A) Four monitoring periods per year, dual sample sets must be taken every 90 days. Eight dual samples sets must be collected per monitoring period.

(B) Three dual sample sets must be taken at the high TTHM locations in the distribution system.

(C) Three dual sample sets must be taken at the high HAA5 locations in the distribution system.

(D) Two dual sample sets must be taken at an existing R309-210-8 compliance location.

(xiv) All systems must monitor during month of highest DBP concentrations.

(xv) Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for subpart H systems serving 500-3,300. Systems on annual monitoring and subpart H systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location, and month, if monitored annually).

(c) The water system must recommend R309-210-10 compliance monitoring locations based on standard monitoring results, system specific study results, and R309-210-8 compliance monitoring results. The water system must follow the protocol in paragraphs (c)(i) through (c)(viii) of this section. If required to monitor at more than eight locations, the water system must repeat the

protocol as necessary. If the water system do not have existing R309-210-8 compliance monitoring results or if the water system do not have enough existing R309-210-8 compliance monitoring results, the water system must repeat the protocol, skipping the provisions of paragraphs (c)(iii) and (c)(vii) of this section as necessary, until the water system have identified the required total number of monitoring locations.

(i) Location with the highest TTHM LRAA not previously selected as a R309-210-10 monitoring location.

(ii) Location with the highest HAA5 LRAA not previously selected as a R309-210-10 monitoring location.

(iii) Existing R309-210-8 average residence time compliance monitoring location (maximum residence time compliance monitoring location for ground water systems) with the highest HAA5 LRAA not previously selected as a R309-210-10 monitoring location.

(iv) Location with the highest TTHM LRAA not previously selected as a R309-210-10 monitoring location.

(v) Location with the highest TTHM LRAA not previously selected as a R309-210-10 monitoring location.

(vi) Location with the highest HAA5 LRAA not previously selected as a R309-210-10 monitoring location.

(vii) Existing R309-210-8 average residence time compliance monitoring location (maximum residence time compliance monitoring location for ground water systems) with the highest TTHM LRAA not previously selected as a R309-210-10 monitoring location.

(viii) Location with the highest HAA5 LRAA not previously selected as a R309-210-10 monitoring location.

(d) The water system may recommend locations other than those specified in paragraph (c) of this section if the water system include a rationale for selecting other locations. If the Executive Secretary approves the alternate locations, the water system must monitor at these locations to determine compliance under R309-210-10 of this part.

(e) The recommended schedule must include R309-210-10 monitoring during the peak historical month for TTHM and HAA5 concentration, unless the Executive Secretary approves another month. Once the water system have identified the peak historical month, and if the water system is [~~are~~] required to conduct routine monitoring at least quarterly, the water system must schedule R309-210-10 compliance monitoring at a regular frequency of every 90 days or fewer.

R309-210-10. Disinfection Byproducts - Stage 2 Requirements.

(1) General requirements.

(a) General. The regulations in this sub-section establish monitoring and other requirements for achieving compliance with maximum contaminant levels based on locational running annual averages (LRAA) for total trihalomethanes (TTHM) and haloacetic acids (five)(HAA5), and for achieving compliance with maximum residual disinfectant residuals for chlorine and chloramine for certain consecutive systems.

(b) Applicability. The water system is [~~are~~] subject to these requirements if the system is a community water system or a

non-transient non-community water system that uses a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

(c) Schedule. The water system must comply with the requirements in this subpart on the schedule in the following sub-paragraphs (c)(i) through (vi) [~~table~~] based on the system type.

(i) For water systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system.

(A) For water systems that serve a population greater than or equal to 100,000 the water system must comply with R309-210-10 monitoring by April 1, 2012.

(B) For water systems that serve a population from 50,000 to 99,999 the water system must comply with R309-210-10 monitoring by October 1, 2012.

(C) For water systems that serve a population from 10,000 to 49,999 the water system must comply with R309-210-10 monitoring by October 1, 2013.

(D) For water systems that serve a population less than 10,000 the water system must comply with R309-210-10 monitoring by October 1, 2013 if no Cryptosporidium monitoring is required under R309-215-15(2)(a)(iv) or October 1, 2014 if Cryptosporidium monitoring is required under R309-215-15(a)(iv) or (a)(vi).

(ii) For other water systems that are part of a combined distribution system:

(A) For wholesale systems or consecutive systems the water system must comply with R309-210-10 monitoring at the same time as the system with the earliest compliance date in the combined distribution system.

(iii) The Executive Secretary may grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if the water system requires capital improvements to comply with an MCL.

(iv) The monitoring frequency is specified in R309-210-10(2)(a)(ii).

(A) If the water system is [~~are~~] required to conduct quarterly monitoring, the water system must begin monitoring in the first full calendar quarter that includes the compliance date in [~~the table in this~~] paragraph (c).

(B) If the water system is [~~are~~] required to conduct monitoring at a frequency that is less than quarterly, the water system must begin monitoring in the calendar month recommended in the IDSE report prepared under R309-210-9(2) or R309-210-9(3) or the calendar month identified in the R309-210-10 monitoring plan developed under R309-210-10(3) no later than 12 months after the compliance date in R309-210-10(1)(c).

(v) If the water system is [~~are~~] required to conduct quarterly monitoring, the water system must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded

regardless of the monitoring results of subsequent quarters). If the water system is [~~are~~] required to conduct monitoring at a frequency that is less than quarterly, the water system must make compliance calculations beginning with the first compliance sample taken after the compliance date.

(vi) For the purpose of the schedule in this paragraph (c), the Executive Secretary may determine that the combined distribution system does not include certain consecutive systems based on factors such as receiving water from a wholesale system only on an emergency basis or receiving only a small percentage and small volume of water from a wholesale system. The Executive Secretary may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivering water to a consecutive system only on an emergency basis or delivering only a small percentage and small volume of water to a consecutive system.

(d) Monitoring and compliance.

(i) Systems required to monitor quarterly. To comply with R309-210-10 MCLs in R309-200-5(3)(c)(3)(vi), the water system must calculate LRAAs for TTHM and HAA5 using monitoring results collected under this sub-section and determine that each LRAA does not exceed the MCL. If the water system fails to complete four consecutive quarters of monitoring, the water system must calculate compliance with the MCL based on the average of the available data from the most recent four quarters. If the water system takes more than one sample per quarter at a monitoring location, the water system must average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.

(ii) Systems required to monitor yearly or less frequently. To determine compliance with R309-210-10 MCLs in R309-200-5(3)(c)(3)(vi), the water system must determine that each sample taken is less than the MCL. If any sample exceeds the MCL, the water system must comply with the requirements of R309-210-10(6). If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

(e) Violation. The water system is [~~are~~] in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if the water system fail to monitor.

(2) Routine monitoring.

(a) Monitoring.

(i) If the water system submitted an IDSE report, the water system must begin monitoring at the locations and months the water system have recommended in the IDSE report submitted under R309-210-9(6) following the schedule in R309-210-10(1)(c), unless the Executive Secretary requires other locations or additional locations after its review. If the water system submitted a 40/30 certification under R309-210-9(4) or the water system qualified for a very small system waiver under R309-210-9(5) or the water system is [~~are~~] a non-transient non-community water system serving less than 10,000, the water system must monitor at the location(s)

and dates identified in the monitoring plan in R309-210-8(5), updated as required by R309-210-10(3).

(ii) The water system must monitor at no fewer than the number of locations identified in this paragraph (a)(ii).

(A) Surface water systems serving less than 500 shall have one monitoring period per year and shall collect two dual samples sets per monitoring period.

(B) Surface water systems serving between 500 to 3,300 shall have four monitoring periods per year and shall collect two dual samples sets per monitoring period.

(C) Surface water systems serving between 3,301 to 9,999 population shall have four monitoring periods per year and shall collect two dual samples sets per monitoring period.

(D) Surface water systems serving between 10,000 to 49,999 population shall have four monitoring periods per year and shall collect four dual samples sets per monitoring period.

(E) Surface water systems serving between 50,000 to 249,999 population shall have four monitoring periods per year and shall collect eight dual samples sets per monitoring period.

(F) Surface water systems serving between 250,000 to 999,999 population shall have four monitoring periods per year and shall collect 12 dual samples per monitoring period.

(G) Surface water systems serving between 1,000,000 to 4,999,999 population shall have four monitoring periods per year and shall collect 16 dual samples sets per monitoring period.

(H) Surface water systems serving 5,000,000 or more population shall have four monitoring periods per year and shall collect 20 dual samples sets per monitoring period.

(I) Ground water systems serving less than 500 shall have one monitoring period per year and shall collect two dual samples sets per monitoring period.

(J) Ground water systems serving between 500 to 9,999 population shall have one monitoring period per year and shall collect two dual samples sets per monitoring period.

(K) Ground water systems serving between 10,000 to 99,999 population shall have four monitoring periods per year and shall collect four dual samples sets per monitoring period.

(L) Ground water systems serving between 100,000 to 499,999 population shall have four monitoring periods per year and shall collect six dual samples sets per monitoring period.

(M) Ground water systems serving 500,000 or greater population shall have four monitoring periods per year and shall collect eight dual samples sets per monitoring period.

(N) All systems must monitor during month of highest DBP concentrations.

(O) Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for surface water systems serving 500-3,300. Systems on annual monitoring and surface water systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5

concentrations occur at the same location (and month, if monitored annually).

(iii) If the water system is an undisinfected system that begins using a disinfectant other than UV light after the dates in R309-210-9 for complying with the Initial Distribution System Evaluation requirements, the water system must consult with the Executive Secretary to identify compliance monitoring locations for this sub-section. The water system must then develop a monitoring plan under R309-210-10(3) that includes those monitoring locations.

(b) Analytical methods. The water system must use an approved method listed in R309-200-4(3) for TTHM and HAA5 analyses in this sub-section. Analyses must be conducted by laboratories that have received certification by EPA or the Executive Secretary as specified in R309-200-4(3).

(3) Stage 2 monitoring plan.

(a)(i) The water system must develop and implement a monitoring plan to be kept on file for Executive Secretary and public review. The monitoring plan must contain the elements in paragraphs (a)(i)(A) through (a)(i)(D) of this section and be complete no later than the date the water system conduct the initial monitoring under this sub-section.

(A) Monitoring locations;

(B) Monitoring dates;

(C) Compliance calculation procedures; and

(D) Monitoring plans for any other systems in the combined distribution system if the Executive Secretary has reduced monitoring requirements under the Executive Secretary authority in R309-105-5(2).

(ii) If the water system were not required to submit an IDSE report under either R309-210-9(2) or R309-210-9(3), and the water system do not have sufficient R309-210-8 monitoring locations to identify the required number of R309-210-10 compliance monitoring locations indicated in R309-210-9(6)(b), the water system must identify additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. The water system must also provide the rationale for identifying the locations as having high levels of TTHM or HAA5. If the water system have more R309-210-8 monitoring locations than required for R309-210-10 compliance monitoring in R309-210-9(6)(b), the water system must identify which locations the water system will use for R309-210-10 compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of R309-210-10 compliance monitoring locations have been identified.

(b) If the water system is [~~are~~] a surface water system serving greater than 3,300 people, the water system must submit a copy of the monitoring plan to the Executive Secretary prior to the date the water system conduct the initial monitoring under this sub-section, unless the IDSE report submitted under R309-210-9 contains all the information required by this section.

(c) The water system may revise the monitoring plan to

reflect changes in treatment, distribution system operations and layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, or for Executive Secretary-approved reasons, after consultation with the Executive Secretary regarding the need for changes and the appropriateness of changes. If the water system changes monitoring locations, the water system must replace existing compliance monitoring locations with the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels. The Executive Secretary may also require modifications in the monitoring plan. If the water system is [~~are~~] a surface water system serving greater than 3,300 people, the water system must submit a copy of the modified monitoring plan to the Executive Secretary prior to the date the water system is [~~are~~] required to comply with the revised monitoring plan.

(4) Reduced monitoring.

(a) The water system may reduce monitoring to the level specified in this paragraph (a) any time the LRAA is equal to or less than 0.040 mg/L for TTHM and equal to or less than 0.030 mg/L for HAA5 at all monitoring locations. The water system may only use data collected under the provisions of this sub-section or R309-210-8 to qualify for reduced monitoring. In addition, the source water annual average TOC level, before any treatment, must be less than or equal to 4.0 mg/L at each treatment plant treating surface water or ground water under the direct influence of surface water, based on monitoring conducted under either R309-210-8(2)(a)(iii) or R309-215-12.

(i) Surface water systems serving a population less than 500. Monitoring reduction

(A) Monitoring may not be reduced.

(ii) Surface water systems serving between 500 to 3,300 population.

(A) One monitoring periods per year. 1 TTHM and 1 HAA5 sample must be collected per monitoring period.

(B) One sample at the location and during the quarter with the highest TTHM single measurement in the distribution system.

(C) One sample at the location and during the quarter with the highest HAA5 single measurement in the distribution system.

(D) Only one dual sample set per year is required if the highest TTHM and HAA5 measurements occurred at the same location and quarter.

(iii) Surface water systems serving between 3,301 to 9,999 population.

(A) One monitoring period per year. Two dual samples sets must be collected per monitoring period.

(B) One dual sample set at the location and during the quarter with the highest TTHM single measurement in the distribution system.

(C) One dual sample set at the location and during the quarter with the highest HAA5 single measurement in the distribution system.

(iv) Surface water systems serving between 10,000 to 49,999 population.

(A) Four monitoring periods per year. Two dual samples sets must be collected per monitoring period.

(B) One dual sample set must be taken at the location of the highest TTHM LRAAs.

(C) One dual sample set must be taken at the location of the highest HAA5 LRAAs.

(v) Surface water systems serving between 50,000 to 249,999 population.

(A) Four monitoring periods per year. Four dual samples sets must be collected per monitoring period.

(B) A dual sample set must be taken at each of the locations of the two highest TTHM LRAAs.

(C) A dual sample set must be taken at each of the locations of the two highest HAA5 LRAAs.

(vi) Surface water systems serving between 250,000 to 999,999 population.

(A) Four monitoring periods per year. Six dual samples sets must be collected per monitoring period.

(B) A dual sample set must be taken at each of the locations of the three highest TTHM LRAAs.

(C) A dual sample set must be taken at each of the locations of the three highest HAA5 LRAAs.

(vii) Surface water systems serving between 1,000,000 to 4,999,999 population.

(A) Four monitoring periods per year. Eight dual samples sets must be collected per monitoring period.

(B) A dual sample set must be taken at each of the locations of the four highest TTHM LRAAs.

(C) A dual sample set must be taken at each of the locations of the four highest HAA5 LRAAs.

(viii) Surface water systems serving 5,000,000 or more population.

(A) Four monitoring periods per year. 10 dual samples sets must be collected per monitoring period.

(B) A dual sample set must be taken at each of the locations of the five highest TTHM LRAAs.

(C) A dual sample set must be taken at each of the locations of the five highest HAA5 LRAAs.

(ix) Ground water systems serving less than 500.

(A) One monitoring period every three years. 1 TTHM and 1 HAA5 sample must be collected per monitoring period.

(B) One sample at the location and during the quarter with the highest TTHM single measurement in the distribution system.

(C) One sample at the location and during the quarter with the highest HAA5 single measurement in the distribution system.

(D) Only one dual sample set per year is required if the highest TTHM and HAA5 measurements occurred at the same location and quarter.

(x) Ground water systems serving between 500 to 9,999 population.

(A) One monitoring period per year. 1 TTHM and 1 HAA5 sample must be collected per monitoring period.

(B) One sample at the location and during the quarter with

the highest TTHM single measurement in the distribution system.

(C) One sample at the location and during the quarter with the highest HAA5 single measurement in the distribution system.

(D) Only one dual sample set per year is required if the highest TTHM and HAA5 measurements occurred at the same location and quarter.

(xi) Ground water systems serving between 10,000 to 99,999 population.

(A) One monitoring period per year. Two dual samples sets must be collected per monitoring period.

(B) One dual sample set at the location and during the quarter with the highest TTHM single measurement in the distribution system.

(C) One dual sample set at the location and during the quarter with the highest HAA5 single measurement in the distribution system.

(xii) Ground water systems serving between 100,000 to 499,999 population.

(A) Four monitoring periods per year. Two dual samples sets must be collected per monitoring period.

(B) One dual sample set must be taken at the location of the highest TTHM LRAAs.

(C) One dual sample set must be taken at the location of the highest HAA5 LRAAs.

(xiii) Ground water systems serving 500,000 or greater population.

(A) Four monitoring periods per year. Four dual samples sets must be collected per monitoring period.

(B) A dual sample set must be taken at each of the locations of the two highest TTHM LRAAs.

(C) A dual sample set must be taken at each of the locations of the two highest HAA5 LRAAs.

(xiv) Systems on quarterly monitoring must take dual sample sets every 90 days.

(b) The water system may remain on reduced monitoring as long as the TTHM LRAA less than or equal to 0.040 mg/L and the HAA5 LRAA less than or equal to 0.030 mg/L at each monitoring location (for systems with quarterly reduced monitoring) or each TTHM sample less than or equal to 0.060 mg/L and each HAA5 sample less than or equal to 0.045 mg/L (for systems with annual or less frequent monitoring). In addition, the source water annual average TOC level, before any treatment, must be less than or equal to 4.0 mg/L at each treatment plant treating surface water or ground water under the direct influence of surface water, based on monitoring conducted under either R309-210-8(2)(a)(iii) or R309-215-12.

(c) If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 or if the annual (or less frequent) sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5, or if the source water annual average TOC level, before any treatment, is greater than 4.0 mg/L at any treatment plant treating surface water or ground water under the direct influence

of surface water, the water system must resume routine monitoring under R309-210-10(2) or begin increased monitoring if R309-210-10(6) applies.

(d) The Executive Secretary may return the system to routine monitoring at the Executive Secretary's discretion.

(5) Additional requirements for consecutive systems.

If the water system is [~~are~~] a consecutive system that does not add a disinfectant but delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, the water system must comply with analytical and monitoring requirements for chlorine and chloramines in R309-200-4(3) and the compliance requirements in R309-210-8(6)(c)(i) beginning April 1, 2009, unless required earlier by the Executive Secretary, and report monitoring results under R309-105-16(2)(c).

(6) Conditions requiring increased monitoring.

(a) If the water system is [~~are~~] required to monitor at a particular location annually or less frequently than annually under R309-210-10(2) or R309-210-10(4), the water system must increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations if a TTHM sample is greater than 0.080 mg/L or a HAA5 sample is greater than 0.06 mg/L at any location.

(b) The water system is [~~are~~] in violation of the MCL when the LRAA exceeds the R309-210-10 MCLs in R309-200-5(3)(c)(vi), calculated based on four consecutive quarters of monitoring (or the LRAA calculated based on fewer than four quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters). The water system is [~~are~~] in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if the water system fail to monitor.

(c) The water system may return to routine monitoring once the water system have conducted increased monitoring for at least four consecutive quarters and the LRAA for every monitoring location is less than or equal to 0.060 mg/L for TTHM and less than or equal to 0.045 mg/L for HAA5.

(7) Operational evaluation levels.

(a) The water system have exceeded the operational evaluation level at any monitoring location where the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4 to determine an average, exceeds 0.080 mg/L, or where the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4 to determine an average, exceeds 0.060 mg/L.

(b)(i) If the water system exceeds the operational evaluation level, the water system must conduct an operational evaluation and submit a written report of the evaluation to the Executive Secretary no later than 90 days after being notified of the analytical result that causes the water system to exceed the operational evaluation level. The written report must be made available to the public upon request.

(ii) The operational evaluation must include an examination of system treatment and distribution operational practices,

including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedences.

(A) The water system may request and the Executive Secretary may allow the water system to limit the scope of the evaluation if the water system is able to identify the cause of the operational evaluation level exceedance.

(B) The request to limit the scope of the evaluation does not extend the schedule in paragraph (b)(i) of this section for submitting the written report. The Executive Secretary must approve this limited scope of evaluation in writing and the water system must keep that approval with the completed report.

(8) Requirements for remaining on reduced TTHM and HAA5 monitoring based on R309-210-8 results.

The water system may remain on reduced monitoring after the dates identified in R309-210-10(1)(c) for compliance with this sub-section only if the water system qualifies [~~qualify~~] for a 40/30 certification under R309-210-9(4) or have received a very small system waiver under R309-210-9(5), plus the water system meets [~~meet~~] the reduced monitoring criteria in R309-210-10(4)(a), and the water system does [~~do~~] not change or add monitoring locations from those used for compliance monitoring under R309-210-8. If the monitoring locations under this sub-section differ from the monitoring locations under R309-210-8, the water system may not remain on reduced monitoring after the dates identified in R309-210-10(1)(c) for compliance with this sub-section.

(9) Requirements for remaining on increased TTHM and HAA5 monitoring based on R309-210-8 results.

If the water system was [~~were~~] on increased monitoring under R309-210-8(2)(a), the water system must remain on increased monitoring until the water system qualifies [~~qualify~~] for a return to routine monitoring under R309-210-10(6)(c). The water system must conduct increased monitoring under R309-210-10(6) at the monitoring locations in the monitoring plan developed under R309-210-10(3) beginning at the date identified in R309-210-10(1)(c) for compliance with this sub-section and remain on increased monitoring until the water system qualifies [~~qualify~~] for a return to routine monitoring under R309-210-10(6)(c).

(10) Reporting and recordkeeping requirements.

(a) Reporting.

(i) The water system must report the following information for each monitoring location to the Executive Secretary within 10 days of the end of any quarter in which monitoring is required:

(A) Number of samples taken during the last quarter.

(B) Date and results of each sample taken during the last quarter.

(C) Arithmetic average of quarterly results for the last four quarters for each monitoring location (LRAA), beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter. If the LRAA calculated based on fewer than four quarters of data would cause

the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the water system must report this information to the Executive Secretary as part of the first report due following the compliance date or anytime thereafter that this determination is made. If the water system is [~~are~~] required to conduct monitoring at a frequency that is less than quarterly, the water system must make compliance calculations beginning with the first compliance sample taken after the compliance date, unless the water system is [~~are~~] required to conduct increased monitoring under R309-210-10(6).

(D) Whether, based on R309-200-5(3)(c)(vi) and this sub-section, the MCL was violated at any monitoring location.

(E) Any operational evaluation levels that were exceeded during the quarter and, if so, the location and date, and the calculated TTHM and HAA5 levels.

(ii) If the system is a surface water system seeking to qualify for or remain on reduced TTHM/HAA5 monitoring, the water system must report the following source water TOC information for each treatment plant that treats surface water or ground water under the direct influence of surface water to the Executive Secretary within 10 days of the end of any quarter in which monitoring is required:

(A) The number of source water TOC samples taken each month during last quarter.

(B) The date and result of each sample taken during last quarter.

(C) The quarterly average of monthly samples taken during last quarter or the result of the quarterly sample.

(D) The running annual average (RAA) of quarterly averages from the past four quarters.

(E) Whether the RAA exceeded 4.0 mg/L.

(iii) The Executive Secretary may choose to perform calculations and determine whether the MCL was exceeded or the system is eligible for reduced monitoring in lieu of having the system report that information

(b) Recordkeeping. The water system must retain any R309-210-10 monitoring plans and the R309-210-10 monitoring results as required by R309-105-17.

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as well as each individual filter. If there is a failure in continuous monitoring equipment the system shall conduct grab sampling every 4 hours in lieu of continuous monitoring, but for no more than five working days following the failure of equipment. Systems serving less than 10,000 population shall have no more than 14 days to conduct grab samples in lieu of continuous monitoring in order to correct any failing equipment. All surface water shall monitor the turbidity results of individual filters at a frequency no greater than every 15 minutes.

(c) Turbidity measurements, as outlined below, shall be reported to the Division within ten days after the end of each month that the system serves water to the public. Systems are required to mark and interpret turbidity values from the recorded charts at the end of each four-hour interval of operation (or some shorter regular time interval) to determine compliance with the turbidity performance criterion. For systems using slow sand filtration the Executive Secretary may reduce the sampling frequency to as little as once per day if the Executive Secretary determines that less frequent monitoring is sufficient to indicate effective filtration performance. For systems serving 500 or fewer persons, the Executive Secretary may reduce the turbidity sampling frequency to as little as once per day, regardless of the type of filtration treatment used, if the Executive Secretary determines that less frequent monitoring is sufficient to indicate effective filtration performance.

The following shall be reported and the required percentage achieved for compliance:

(i) The total number of interpreted filtered water turbidity measurements taken during the month;

(ii) The number and percentage of interpreted filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in R309-200-5(5)(a)(ii) (or increased limit approved by the Executive Secretary). The percentage of measurements which are less than or equal to the turbidity limit shall be 95 percent or greater for compliance; and

(iii) The date and value of any turbidity measurements taken during the month which exceed 5 NTU. The system shall inform the Division as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with R309-220-6(2)(c) if any turbidity measurements exceed 5 NTU.

(d) The analytical method which shall be followed in making the required determinations shall be Nephelometric Method - Nephelometric Turbidity Unit as set forth in the latest edition of Standard Methods for Examination of Water and Wastewater, 1985, American Public Health Association et al., (Method 214A, pp. 134-136 in the 16th edition). Continuous turbidity monitoring equipment shall be checked for accuracy and recalibrated using methods outlined in the above standard at a minimum frequency of monthly. The direct responsible charge operator will note on the turbidity report form when these recalibrations are conducted. For systems that practice lime softening, the representative combined filter effluent turbidity sample may be acidified prior to analysis with prior approval by the Executive Secretary as to the protocol.

(2) Procedures if a Filtered Water Turbidity Limit is Exceeded

(a) Resampling -

If an analysis indicates that the turbidity limit has been exceeded, the sampling and measurement shall be confirmed by resampling as soon as practicable and preferably within one hour.

(b) If the result of resampling confirms that the turbidity limit has been exceeded, the system shall collect and have analyzed at least one bacteriologic sample near the first service

connection from the source as specified in R309-210-5(1)(f). The system shall collect this bacteriologic sample within 24 hours of the turbidity exceedance. Sample results from this monitoring shall be included in determining bacteriologic compliance for that month.

(c) Initial Notification of the Executive Secretary -

If the repeat sample confirms that the turbidity limit has been exceeded, the supplier shall report this fact to the Executive Secretary as soon as practical, but no later than 24 hours after the exceedance is known in accordance with the public notification requirements under R309-220-6(2)(c). This reporting is in addition to reporting the incident on any monthly reports.

(3) For the purpose of individual plant evaluation and establishment of pathogen removal credit for the purpose of lowering the required "CT" value assigned a plant, plant management may do additional turbidity monitoring at other points to satisfy criteria in R309-215-7(2).

(4) Additional reporting and recordkeeping requirements for large surface water systems (serving greater than 10,000 population) reporting and recordkeeping requirements.

In addition to the reporting and recordkeeping requirements sub-sections (1), (2) and (3) above, a large surface water system that provides conventional filtration treatment or direct filtration shall report monthly to the Division the information specified in paragraphs (a) and (b) of this section. In addition to the reporting and recordkeeping requirements above, a public water system subject to the requirements of this subpart that provides filtration approved under R309-530-8 or R309-530-9 shall report monthly to the Division the information specified in paragraphs (a) of this section. The reporting in paragraph (a) of this section is in lieu of the reporting specified above.

(a) Turbidity measurements, as required in R309-200-5(5)(a), shall be reported within 10 days after the end of each month the system serves water to the public. Information that shall be reported includes:

(i) The total number of filtered water turbidity measurements taken during the month.

(ii) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to 0.3 NTU or those levels established under R309-200-5(5)(a)(ii).

(iii) The date and value of any turbidity measurements taken during the month which exceed 1 NTU for systems using conventional filtration treatment or direct filtration, or which exceed the maximum level set by the Executive Secretary under R309-530-8 or R309-530-9.

(b) Systems shall maintain the results of individual filter monitoring taken under R309-215-9(1)(b) for at least three years. Systems shall record the results of individual filter monitoring every 15 minutes. Systems shall report that they have conducted individual filter turbidity monitoring within 10 days after the end of each month the system serves water to the public. Systems shall report individual filter turbidity measurement results within 10 days after the end of each month the system serves water to the public only if measurements demonstrate one or more of the conditions in paragraphs (b)(i) through (iv) of this section. Systems that use lime softening may apply to the Executive Secretary for alternative exceedance levels for the levels specified in paragraphs (b)(i) through (iv) of this section if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(i) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart, the system shall report the filter number,

(iii) The date and value of any turbidity measurements taken during the month which exceed 1 NTU for systems using conventional filtration treatment or direct filtration, or which exceed the maximum level set by the Executive Secretary under R309-530-8 or R309-530-9.

(b) Systems shall maintain the results of individual filter monitoring taken under R309-215-9(1)(b) for at least three years. Systems shall record the results of individual filter monitoring every 15 minutes. Systems shall report that they have conducted individual filter turbidity monitoring within 10 days after the end of each month the system serves water to the public. Systems shall report individual filter turbidity measurement results within 10 days after the end of each month the system serves water to the public only if measurements demonstrate one or more of the conditions in paragraphs (b)(i) through (iv) of this section. Systems that use lime softening may apply to the Executive Secretary for alternative exceedance levels for the levels specified in paragraphs (b)(i) through (iv) of this section if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(i) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart, the system shall report the filter number(s),the corresponding date(s), the turbidity values which exceeded 1.0 NTU, and the cause (if known) for the exceedance(s), to the Executive Secretary by the 10th of the following month.

(ii) If a system was required to report to the Executive Secretary for three months in a row and turbidity exceeded 1.0 NTU in two consecutive recordings taken 15 minutes apart at the same filter (or CFE for systems with 2 filters that monitor CFE in lieu of individual filters), the system shall conduct a self-assessment of the filter within 14 days of the day the filter exceeded 1.0 NTU in two consecutive measurements for the third straight month unless a CPE as specified in paragraph (iii) of this section was required. Systems with 2 filters that monitor CFE in lieu of individual filters must conduct a self assessment on both filters. The self-assessment must consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report. If a self-assessment is required, the date that it was triggered and the date that it was completed.

(iii) If a system was required to report to the Executive Secretary for two months in a row and turbidity exceeded 2.0 NTU in two consecutive measurements taken 15 minutes apart at the same filter, the system shall arrange to have a comprehensive performance evaluation (CPE) conducted by the Division or a third party approved by the Executive Secretary no later than 60 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month. If a CPE is required, the system must report a CPE required and the date it was triggered. If a CPE has been completed by the Division or a third party approved by the Executive Secretary within the 12 prior months or the system and Division are jointly participating in an ongoing Comprehensive Technical Assistance (CTA) project at the system, a new CPE is not required. If conducted, a CPE must be completed and submitted to the Division no later than 120 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month.

(6) Additional reporting requirements.

the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system shall either produce a filter profile for the filter within 7 days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

(ii) For any individual filter that has a measured turbidity level of greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart at the end of the first four hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the system shall report the filter number, the turbidity, and the date(s) on which the exceedance occurred. In addition, the system shall either produce a filter profile for the filter within 7 days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

(iii) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months, the system shall report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system shall conduct a self-assessment of the filter within 14 days of the exceedance and report that the self-assessment was conducted. The self assessment shall consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.

(iv) For any individual filter that has a measured turbidity level of greater than 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months, the system shall report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system shall arrange for and conduct a comprehensive performance evaluation by the Division or a third party approved by the Executive Secretary no later than 30 days following the exceedance and have the evaluation completed and submitted to the Division no later than 90 days following the exceedance.

(5) Additional reporting and recordkeeping requirements for surface water systems serving less than 10,000 population.

In addition to the reporting and recordkeeping requirements sub-sections (1), (2) and (3) above, a surface water system that provides conventional filtration treatment or direct filtration shall report monthly to the Division the information specified in paragraphs (a) and (b) of this section. In addition to the reporting and recordkeeping requirements above, a public water system subject to the requirements of this subpart that provides filtration approved under R309-530-8 or R309-530-9 shall report monthly to the Division the information specified in paragraphs (a) of this section. The reporting in paragraph (a) of this section is in lieu of the reporting specified above.

(a) Turbidity measurements, as required in R309-200-5(5)(a), shall be reported within 10 days after the end of each month the system serves water to the public. Information that shall be reported includes:

(i) The total number of filtered water turbidity measurements taken during the month.

(ii) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to 0.3 NTU or those levels established under R309-200-5(5)(a)(ii).

(a) If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system shall inform the Division as soon as possible, but no later than the end of the next business day.

(b) If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the Executive Secretary under R309-530-8 or R309-530-9 for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the system shall inform the Division as soon as possible, but no later than the end of the next business day.

R309-215-13. Treatment Technique for Control of Disinfection Byproduct Precursors (DBPP).

(1) Applicability.

(a) Surface water systems using conventional filtration treatment (as defined in R309-110) shall operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in paragraph (2) of this section unless the system meets at least one of the alternative compliance criteria listed in paragraph (1)(b) or (1)(c) of this section.

(b) Alternative compliance criteria for enhanced coagulation and enhanced softening systems. Surface Water Systems using conventional filtration treatment may use the alternative compliance criteria in paragraphs (1)(b)(i) through (vi) of this section to comply with this section in lieu of complying with paragraph (2) of this section. Systems shall still comply with monitoring requirements in R309-215-12.

(i) The system's source water TOC level, measured according to R309-200-4(3), is less than 2.0 mg/L, calculated quarterly as a running annual average.

(ii) The system's treated water TOC level, measured according to R309-200-4(3), is less than 2.0 mg/L, calculated quarterly as a running annual average

(iii) The system's source water TOC level, measured according to R309-200-4(3), is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to R309-200-4(3), is greater than 60 mg/L (as $CaCO_3$), calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance in R309-210-8(1)(a), the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in R309-210-8(1)(a) to use of technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively. Systems shall submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the Executive Secretary for approval not later than the effective date for compliance in R309-210-8(1)(a). These technologies shall be installed and operating not later than June 30, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a violation of National Primary Drinking Water Regulations.

(iv) The TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

(v) The system's source water SUVA, prior to any treatment and measured monthly according to R309-200-4(3), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(vi) The system's finished water SUVA, measured monthly according to R309-200-4(3), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(c) Additional alternative compliance criteria for softening systems. Systems practicing enhanced softening that cannot achieve the TOC removals required by paragraph (2)(b) of this section may use the alternative compliance criteria in paragraphs (1)(c)(i) and (ii) of this section in lieu of complying with paragraph (2) of this section. Systems shall still comply with monitoring requirements in R309-210-8(4).

(i) Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as $CaCO_3$), measured monthly according to R309-200-4(3) and calculated quarterly as a running annual average.

(ii) Softening that results in removing at least 10 mg/L of magnesium hardness (as $CaCO_3$), measured monthly according to R309-200-4(3) and calculated quarterly as an annual running average.

. . . . . .

R309-215-14. Disinfection Profiling and Benchmarking.

A disinfection profile is a graphical representation of your system's level of Giardia lamblia or virus inactivation measured during the course of a year. Community or non-transient non-community water systems which use surface water or ground water under the direct influence of surface must develop a disinfection profile unless the Executive Secretary determines that a system's profile is unnecessary. The Executive Secretary may approve the use of a more representative data set for disinfection profiling than the data set required under R309-215-14.

(1) Determination of systems required to profile. A public water system subject to the requirements of this subpart shall determine its TTHM annual average using the procedure in paragraph (1)(a) of this section and its HAA5 annual average using the procedure in paragraph (1)(b) of this section. The annual average is the arithmetic average of the quarterly averages of four consecutive quarters of monitoring.

(a) The TTHM annual average shall be the annual average during the same period as is used for the HAA5 annual average.

(i) Those systems that collected data under the provisions of 40 CFR 141.142 subpart M (Information Collection Rule) shall use the results of the samples collected during the last four quarters of required monitoring.

(ii) Those systems that use grandfathered HAA5 occurrence data that meet the provisions of paragraph (1)(b)(ii) of this section shall use TTHM data collected at the same time under the provisions of R309-200-5(3)(c)(vii) and R309-210-9.

(iii) Those systems that use HAA5 occurrence data that meet the provisions of paragraph (1)(b)(iii)(A) of this section shall use TTHM data collected at the same time under the provisions of R309-200-5(3)(c)(vii) and R309-210-9.

(b) The HAA5 annual average shall be the annual average during the same period as is used for the TTHM annual average.

(i) Those systems that collected data under the provisions of 40 CFR 141.142 subpart M (Information Collection Rule) shall use the results of the samples collected during the last four quarters of required monitoring.

(ii) Those systems that have collected four quarters of HAA5 occurrence data that meets the routine monitoring sample number and location requirements for TTHM in R309-200-5(3)(c)(vii) and R309-210-9 and handling and analytical method requirements of R309-200-4(3) may use those data to determine whether the requirements of this section apply.

(iii) Those systems that have not collected four quarters of HAA5 occurrence data that meets the provisions of either paragraph (1)(b)(i) or (ii) of this section by March 16, 1999 shall either:

(A) Conduct monitoring for HAA5 that meets the routine monitoring sample number and location requirements for TTHM in R309-200-5(3)(c)(vii) and R309-210-9 and handling and analytical method requirements of R309-200-4(3) to determine the HAA5 annual average and whether the requirements of paragraph (2) of this section apply. This monitoring shall be completed so that the applicability determination can be made no later than March 31, 2000, or

(B) Comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with paragraph (2) of this section.

(c) The system may request that the Executive Secretary approve a more representative annual data set than the data set determined under paragraph (1)(a) or (b) of this section for the purpose of determining applicability of the requirements of this section.

(d) The Executive Secretary may require that a system use a more representative annual data set than the data set determined under paragraph (1)(a) or (b) of this section for the purpose of determining applicability of the requirements of this section.

(e) The system shall submit data to the Executive Secretary on the schedule in paragraphs (1)(e)(i) through (v) of this section.

(i) Those systems that collected TTHM and HAA5 data under the provisions of subpart M (Information Collection Rule), as required by paragraphs (1)(a)(i) and (1)(b)(i) of this section, shall submit the results of the samples collected during the last 12 months of required monitoring under 40 CFR section 141.142 (Information Collection Rule) not later than December 31, 1999.

(ii) Those systems that have collected four consecutive quarters of HAA5 occurrence data that meets the routine monitoring sample number and location for TTHM in R309-200-5(3)(c)(vii) and R309-210-9 and handling and analytical method requirements of R309-200-4(3), as allowed by paragraphs (1)(a)(ii) and (1)(b)(ii) of this section, shall submit those data to the Executive Secretary not later April 16, 1999. Until the Executive Secretary has approved the data, the system shall conduct monitoring for HAA5 using the monitoring requirements specified under paragraph (1)(b)(iii) of this section.

(iii) Those systems that conduct monitoring for HAA5 using the monitoring requirements specified by paragraphs (1)(a)(iii) and (1)(b)(iii)(A) of this section, shall submit TTHM and HAA5 data not later than April 1, 2000.

(iv) Those systems that elect to comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with this section, as allowed under paragraphs (1)(b)(iii)(B) of this section, shall notify the Executive Secretary in writing of their election not later than December 31, 1999.

(v) If the system elects to request that the Executive Secretary approve a more representative annual data set than the data set determined under paragraph (1)(b)(i) of this section, the system shall submit this request in writing not later than December 31, 1999.

(f) Any system having either a TTHM annual average greater than or equal to 0.064 mg/L or an HAA5 annual average greater than or equal to 0.048 mg/L during the period identified in paragraphs (1)(a) and (b) of this section shall comply with paragraph (2) of this section.

(g) The Executive Secretary may only determine that a system's profile is unnecessary if a system's TTHM and HAA5 levels are below 0.064 mg/L and 0.048 mg/L, respectively. To determine these levels, TTHM and HAA5 samples must be collected after January 1, 1998, during the month with the warmest water temperature, and at the point of maximum residence time in your distribution system. The Executive Secretary may approve a more representative TTHM and HAA5 data set to determine these levels.

(2) Disinfection profiling.

(a) Any system that is required by paragraph (1) of this section shall develop a disinfection profile of its disinfection practice for a period of up to three years. A disinfection profile consists of the following 3 steps:

(i) The system must collect data for several parameters from the plant over the course of 12 months. If your system serves between 500 and 9,999 persons you must begin to collect data no later than July 1, 2003. If your system serves fewer than 500 persons you must begin to collect data no later than January 1, 2004. If your system serves 10,000 persons or greater than the requirements of R309-215-14(2) are only required if it meets the criteria in paragraph R309-215-14(1)(f).

(ii) The system must use this data to calculate weekly log inactivation as discussed in paragraph (d) of this section.

(iii) The system must use these weekly log inactivations to develop a disinfection profile.

(b) The system shall monitor daily for a period of 12 consecutive calendar months to determine the total logs of inactivation for each day of operation, based on the CT99.9 values in Tables 1.1-1.6, 2.1, and 3.1 of Section 141.74(b)(3) in the code of Federal Regulations (also available from the Division), as appropriate, through the entire treatment plant. This system shall begin this monitoring not later than April 1, 2000. As a minimum, the system with a single point of disinfectant application prior to entrance to the distribution system shall conduct the monitoring in paragraphs (2)(b)(i) through (iv) of this section. A system with more than one point of disinfectant application shall conduct the monitoring in paragraphs (2)(b)(i) through (iv) of this section for each disinfection segment. The system shall monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in R309-200-4(3), as follows:

(i) The temperature of the disinfected water shall be measured once per day at each residual disinfectant concentration sampling point during peak hourly flow.

(ii) If the system uses chlorine, the pH of the disinfected water shall be measured once per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow.

(iii) The disinfectant contact time(s) ("T") shall be determined for each day during peak hourly flow.

(iv) The residual disinfectant concentration(s) ("C") of the water before or at the first customer and prior to each additional point of disinfection shall be measured each day during peak hourly flow.

(v) For systems serving less than 10,000 persons, the above parameters shall be monitored once per week on the same calendar day, over 12 consecutive months for the purposes of disinfection profiling.

(c) In lieu of the monitoring conducted under the provisions of paragraph (2)(b) of this section to develop the disinfection profile, the system may elect to meet the requirements of paragraph (2)(c)(i) of this section. In addition to the monitoring conducted under the provisions of paragraph (2)(b) of this section to develop the disinfection profile, the system may elect to meet the requirements of paragraph (2)(c)(ii) of this section.

(i) A PWS that has three years of existing operational data may submit those data, a profile generated using those data, and a request that the Executive Secretary approve use of those data in lieu of monitoring under the provisions of paragraph (2)(b) of this section not later than March 31, 2000. The Executive Secretary shall determine whether these operational data are substantially equivalent to data collected under the provisions of paragraph (2)(b) of this section. These data shall also be representative of Giardia lamblia inactivation through the entire treatment plant and not just of certain treatment segments. Until the Executive Secretary approves this request, the system is required to conduct monitoring under the provisions of paragraph (2)(b) of this section.

(ii) In addition to the disinfection profile generated under paragraph (2)(b) of this section, a PWS that has existing operational data may use those data to develop a disinfection profile for additional years. Such systems may use these additional yearly disinfection profiles to develop a benchmark under the provisions of paragraph (3) of this section. The Executive Secretary shall determine whether these operational data are substantially equivalent to data collected under the provisions of paragraph (2)(b) of this section. These data shall also be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

(d) The system shall calculate the total inactivation ratio as follows:

(i) If the system uses only one point of disinfectant application, the system may determine the total inactivation ratio for the disinfection segment based on either of the methods in paragraph (2)(d)(i)(A) or (2)(d)(i)(B) of this section.

(A) Determine one inactivation ratio ($CTcalc/CT_{99.9}$) before or at the first customer during peak hourly flow.

(B) Determine successive $CTcalc/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the system shall calculate the total inactivation ratio by determining ($CTcalc/CT_{99.9}$) for each sequence and then adding the ($CTcalc/CT_{99.9}$) values together to determine sum of ($CTcalc/CT_{99.9}$).

(ii) If the system uses more than one point of disinfectant application before the first customer, the system shall determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CTcalc/CT_{99.9}$) value of each segment and sum of ($CTcalc/CT_{99.9}$) shall be calculated using the method in paragraph (b)(4)(i) of this section.

(iii) The system shall determine the total logs of inactivation by multiplying the value calculated in paragraph (2)(d)(i) or (ii) of this section by 3.0.

(e) A system that uses either chloramines or ozone for primary disinfection shall also calculate the logs of inactivation for viruses using a method approved by the Executive Secretary.

(f) The system shall retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the Executive Secretary for review as part of sanitary surveys conducted by the Executive Secretary.

(3) Disinfection Benchmarking

(a) Any system required to develop a disinfection profile under the provisions of paragraphs (1) and (2) of this section and that decides to make a significant change to its disinfection practice shall consult with the Executive Secretary prior to making such change. Significant changes to disinfection practice are:

(i) Changes to the point of disinfection;

(ii) Changes to the disinfectant(s) used in the treatment plant;

(iii) Changes to the disinfection process; and

(iv) Any other modification identified by the Executive Secretary.

(b) Any system that is modifying its disinfection practice shall calculate its disinfection benchmark using the procedure specified in paragraphs (3)(b)(i) through (ii) of this section.

(i) For each year of profiling data collected and calculated under paragraph (2) of this section, the system shall determine the lowest average monthly Giardia lamblia inactivation in each year of profiling data. The system shall determine the average Giardia lamblia inactivation for each calendar month for each year of profiling data by dividing the sum of daily Giardia lamblia of inactivation by the number of values calculated for that month.

(ii) The disinfection benchmark is the lowest monthly average value (for systems with one year of profiling data) or average of lowest monthly average values (for systems with more than one year of profiling data) of the monthly logs of Giardia lamblia inactivation in each year of profiling data.

(c) A system that uses either chloramines, ozone or chlorine dioxide for primary disinfection must calculate the disinfection benchmark from the data the system collected for viruses to develop the disinfection profile in addition to the Giardia lamblia disinfection benchmark calculated under paragraph (b)(i) above. This viral benchmark must be calculated in the same manner used to calculate the Giardia lamblia disinfection benchmark in paragraph (b)(i).

(d) The system shall submit information in paragraphs (3)(d)(i) through (iv) of this section to the Executive Secretary as part of its consultation process.

(i) A description of the proposed change;

(ii) The disinfection profile for Giardia lamblia (and, if necessary, viruses) under paragraph (2) of this section and benchmark as required by paragraph (3)(b) of this section; and

(iii) An analysis of how the proposed change will affect the current levels of disinfection.

(iv) Any additional information requested by the Executive Secretary.

R309-215-15. Enhanced Treatment for Cryptosporidium (Federal Subpart W).

(1) General requirements.

(a) The rule requirements of this section establish or extend treatment technique requirements in lieu of maximum contaminant levels for Cryptosporidium. These requirements are in addition to requirements for filtration and disinfection in R309-200 and other parts of R309-215.

(b) Applicability. The requirements of this subpart apply to all surface water systems, which are public water systems supplied by a surface water source and public water systems supplied by a ground water source under the direct influence of surface water.

(i) Wholesale systems, as defined in R309-110, must comply with the requirements of this section based on the population of the largest system in the combined distribution system.

(ii) The requirements of this sub-section apply to systems required by these rules to provide filtration treatment, whether or not the system is currently operating a filtration system.

(c) Requirements. Systems subject to this subpart must comply with the following requirements:

(i) Systems must conduct an initial and a second round of source water monitoring for each plant that treats a surface water or GWUDI source. This monitoring may include sampling for Cryptosporidium, E. coli, and turbidity as described in R309-215-15(2) through R309-215-15(7), to determine what level, if any, of additional Cryptosporidium treatment they must provide.

(ii) Systems that plan to make a significant change to their disinfection practice must develop disinfection profiles and calculate disinfection benchmarks, as described in R309-215-15(9) through R309-215-15(10).

(iii) Filtered systems must determine their Cryptosporidium treatment bin classification as described in R309-215-15(11) and provide additional treatment for Cryptosporidium, if required, as described in R309-215-15(12). Filtered must implement Cryptosporidium treatment according to the schedule in R309-215-14.

(iv) Systems required to provide additional treatment for Cryptosporidium must implement microbial toolbox options that are designed and operated as described in R309-215-15(15) through R309-215-15(20).

(v) Systems must comply with the applicable recordkeeping and reporting requirements described in R309-215-15(21) through R309-215-15(22).

(vi) Systems must address significant deficiencies identified in sanitary surveys performed by EPA as described in R309-215-15(22).

(2) Source Water Monitoring Requirements.

(a) Initial round of source water monitoring. Systems must conduct the following monitoring on the schedule in paragraph (c) of this section unless they meet the monitoring exemption criteria in paragraph (d) of this section.

(i) Filtered systems serving at least 10,000 people must sample their source water for Cryptosporidium, E. coli, and turbidity at least monthly for 24 months.

(ii) (A) Filtered systems serving fewer than 10,000 people must sample their source water for E. coli at least once every two weeks for 12 months.

(B) A filtered system serving fewer than 10,000 people may avoid E. coli monitoring if the system notifies the Executive Secretary that it will monitor for Cryptosporidium as described in paragraph (a)(iv) of this section. The system must notify the Executive Secretary no later than 3 months prior to the date the system is otherwise required to start E. coli monitoring under R309-215-15(2)(c).

(iii) Filtered systems serving fewer than 10,000 people must sample their source water for Cryptosporidium at least twice per month for 12 months or at least monthly for 24 months if they meet one of the following, based on monitoring conducted under paragraph (a)(iii) of this section:

(A) For systems using lake/reservoir sources, the annual mean E. coli concentration is greater than 10 E. coli/ 100 mL.

(B) For systems using flowing stream sources, the annual mean E. coli concentration is greater than 50 E. coli/ 100 mL.

(C) The system does not conduct E. coli monitoring as described in paragraph (a)(iii) of this section.

(D) Systems using ground water under the direct influence of surface water (GWUDI) must comply with the requirements of paragraph (a)(iv) of this section based on the E. coli level that applies to the nearest surface water body. If no surface water body is nearby, the system must comply based on the requirements that apply to systems using lake/reservoir sources.

(iv) For filtered systems serving fewer than 10,000 people, the Executive Secretary may approve monitoring for an indicator other than E. coli under paragraph (a)(ii) of this section. The Executive Secretary also may approve an alternative to the E. coli concentration in paragraph (a)(iii)(A), (B) or (D) of this section to trigger Cryptosporidium monitoring. This approval by the Executive Secretary must be provided to the system in writing and must include the basis for the Executive Secretary's determination that the alternative indicator and/or trigger level will provide a more accurate identification of whether a system will exceed the Bin 1 Cryptosporidium level in R309-215-15(11).

(v) Systems may sample more frequently than required under this section if the sampling frequency is evenly spaced throughout the monitoring period.

(b) Second round of source water monitoring. Systems must conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in paragraph (a) of this section, unless they meet the monitoring exemption criteria in paragraph (d) of this section. Systems must conduct this monitoring on the schedule in paragraph (c) of this section.

(c) Monitoring schedule. Systems must begin the monitoring required in paragraphs (a) and (b) of this section no later than the month beginning with the date listed:

(i) Systems that serve at least 100,000 people must:

(A) begin the first round of source water monitoring no later than October 1, 2006; and

(B) begin the second round of source water monitoring no later than April 1, 2015.

(ii) Systems that serve from 50,000 to 99,999 people must:

(A) begin the first round of source water monitoring no later than April 1, 2007; and

(B) begin the second round of source water monitoring no later than October 1, 2015.

(iii) Systems that serve from 10,000 to 49,999 people must:

(A) begin the first round of source water monitoring no later than April 1, 2008; and

(B) begin the second round of source water monitoring no later than October 1, 2016.

(iv) Systems that serve less than 10,000 people and monitor for E. coli must:

(A) begin the first round of source water monitoring no later than October 1, 2008; and

(B) begin the second round of source water monitoring no later than October 1, 2017.

(C) Applies only to filtered systems.

(v) Systems that serve less than 10,000 people and monitor for Cryptosporidium must:

(A) begin the first round of source water monitoring no later than April 1, 2010; and

(B) begin the second round of source water monitoring no later than April 1, 2019.

(C) Applies to filtered systems that meet the conditions of paragraph (a)(iii) of this section.

(d) Monitoring avoidance.

(i) Filtered systems are not required to conduct source water monitoring under this sub-section if the system will provide a total of at least 5.5-log of treatment for Cryptosporidium, equivalent to meeting the treatment requirements of Bin 4 in R309-215-15(12).

(ii) If a system chooses to provide the level of treatment in paragraph (d)(i) of this section rather than start source monitoring, the system must notify the Executive Secretary in writing no later than the date the system is otherwise required to submit a sampling schedule for monitoring under R309-215-15(3). Alternatively, a system may choose to stop sampling at any point after it has initiated monitoring if it notifies the Executive Secretary in writing that it will provide this level of treatment. Systems must install and [~~an~~] operate technologies to provide this level of treatment by the applicable compliance dates in R309-215-15(13).

(e) Plants operating only part of the year. Systems with surface water plants that operate for only part of the year must conduct source water monitoring in accordance with this subpart, but with the following modifications:

(i) Systems must sample their source water only during the months that the plant operates unless the Executive Secretary specifies another monitoring period based on plant operating practices.

(ii) Systems with plants that operate less than six months per year and that monitor for Cryptosporidium must collect at least six Cryptosporidium samples per year during each of two years of monitoring. Samples must be evenly spaced throughout the period the plant operates.

(f)(i) New sources. A system that begins using a new source of surface water or GWUDI after the system is required to begin monitoring under paragraph (c) of this section must monitor the new source on a schedule the Executive Secretary approves. Source water monitoring must meet the requirements of this sub-section. The system must also meet the bin classification and Cryptosporidium treatment requirements of R309-215-15(11) and (12) for the new source on a schedule the Executive Secretary approves.

(ii) The requirements of R309-215-15(2)(f) apply to surface water systems that begin operation after the monitoring start date applicable to the system's size under paragraph (c) of this section.

(iii) The system must begin a second round of source water monitoring no later than 6 years following initial bin classification under R309-215-15(11).

(g) Failure to collect any source water sample required under this section in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements of R309-215-15(3) through R309-215-15(7) is a monitoring violation.

(h) Grandfathering monitoring data. Systems may use (grandfather) monitoring data collected prior to the applicable monitoring start date in paragraph (c) of this section to meet the initial source water monitoring requirements in paragraph (a) of this section. Grandfathered data may substitute for an equivalent number of months at the end of the monitoring period. All data submitted under this paragraph must meet the requirements in R309-215-15(8).

(3) Sampling schedules.

(a) Systems required to conduct source water monitoring under R309-215-15(2) must submit a sampling schedule that specifies the calendar dates when the system will collect each required sample.

(i) Systems must submit sampling schedules no later than 3 months prior to the applicable date listed in R309-215-15(2)(c) for each round of required monitoring.

(ii) (A) Systems serving at least 10,000 people must submit their sampling schedule for the initial round of source water monitoring under R309-215-15(2)(a) to EPA electronically at https:// intranet.epa.gov/lt2/.

(B) If a system is unable to submit the sampling schedule electronically, the system may use an alternative approach for submitting the sampling schedule that EPA approves.

(iii) Systems serving fewer than 10,000 people must submit their sampling schedules for the initial round of source water monitoring R309-215-15(2)(a) to the Executive Secretary.

(iv) Systems must submit sampling schedules for the second round of source water monitoring R309-215-15(2)(b) to the Executive Secretary.

(v) If EPA or the Executive Secretary does not respond to a system regarding its sampling schedule, the system must sample at the reported schedule.

(b) Systems must collect samples within two days before or two days after the dates indicated in their sampling schedule (i.e., within a five-day period around the schedule date) unless one of the conditions of paragraph (b)(i) or (ii)[~~(b)(1) or (2)~~] of this section applies.

(i) If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided and causes the system to be unable to sample in the scheduled five-day period, the system must sample as close to the scheduled date as is feasible unless the Executive Secretary approves an alternative sampling date. The system must submit an explanation for the delayed sampling date to the Executive Secretary concurrent with the shipment of the sample to the laboratory.

(ii)(A) If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method requirements, including the quality control requirements in R309-215-15(5), or the failure of an approved laboratory to analyze the sample, then the system must collect a replacement sample.

(B) The system must collect the replacement sample not later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date unless the system demonstrates that collecting a replacement sample within this time frame is not feasible or the Executive Secretary approves an alternative resampling date. The system must submit an explanation for the delayed sampling date to the Executive Secretary concurrent with the shipment of the sample to the laboratory.

(c) Systems that fail to meet the criteria of paragraph (b) of this section for any source water sample required under R309-215-15(2) must revise their sampling schedules to add dates for collecting all missed samples. Systems must submit the revised schedule to the Executive Secretary for approval prior to when the system begins collecting the missed samples.

(4) Sampling locations.

(a) Systems required to conduct source water monitoring under R309-215-15(2) must collect samples for each plant that treats a surface water or GWUDI source. Where multiple plants draw water from the same influent, such as the same pipe or intake, the Executive

Secretary may approve one set of monitoring results to be used to satisfy the requirements of R309-215-15(2) for all plants.

(b) (i) Systems must collect source water samples prior to chemical treatment, such as coagulants, oxidants and disinfectants, unless the system meets the condition of paragraph (b)(ii) of this section.

(ii) The Executive Secretary may approve a system to collect a source water sample after chemical treatment. To grant this approval, the Executive Secretary must determine that collecting a sample prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

(c) Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.

(d) Bank filtration.

(i) Systems that receive Cryptosporidium treatment credit for bank filtration under R309-200-5(5)(a)(ii) must collect source water samples in the surface water prior to bank filtration.

(ii) Systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well (i.e., after bank filtration). Use of bank filtration during monitoring must be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration under R309-215-15(16)(c).

(e) Multiple sources. Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and ground water sources, must collect samples as specified in paragraph (e)(i) or (ii) of this section. The use of multiple sources during monitoring must be consistent with routine operational practice.

(i) If a sampling tap is available where the sources are combined prior to treatment, systems must collect samples from the tap.

(ii) If a sampling tap where the sources are combined prior to treatment is not available, systems must collect samples at each source near the intake on the same day and must follow either paragraph (e)(ii)(A) or (B) of this section for sample analysis.

(A) Systems may composite samples from each source into one sample prior to analysis. The volume of sample from each source must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.

(B) Systems may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average must be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then summing these values.

(f) Additional Requirements. Systems must submit a description of their sampling location(s) to the Executive Secretary at the same time as the sampling schedule required under R309-215-15(3). This description must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. If the Executive Secretary does not respond to a system regarding sampling location(s), the system must sample at the reported location(s).

(5) Analytical methods.

(a) Cryptosporidium. Systems must analyze for Cryptosporidium using Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA, 2005, United States Environmental Protection Agency, EPA-815-R-05-002 or Method 1622: Cryptosporidium in Water by

Filtration/IMS/FA, 2005, United States Environmental Protection Agency, EPA-815-R-05-001, which are incorporated by reference. You may obtain a copy of these methods online from http:// www.epa.gov/safewater/disinfection/lt2 or from the United States Environmental Protection Agency, Office of Ground Water and Drinking Water, 1201 Constitution Ave., NW, Washington, DC 20460 (Telephone: 800-426-4791). You may inspect a copy at the Water Docket in the EPA Docket Center, 1301 Constitution Ave., NW, Washington, DC, (Telephone: 202-566-2426) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. You may also obtain a copy of these methods by contacting the Division of Drinking Water at 801-536-4200.

(i) Systems must analyze at least a 10 L sample or a packed pellet volume of at least 2 mL as generated by the methods listed in paragraph (a) of this section. Systems unable to process a 10 L sample must analyze as much sample volume as can be filtered by two filters approved by EPA for the methods listed in paragraph (a) of this section, up to a packed pellet volume of at least 2 mL.

(ii) (A) Matrix spike (MS) samples, as required by the methods in paragraph (a) of this section, must be spiked and filtered by a laboratory approved for Cryptosporidium analysis under R309-215-15(6).

(B) If the volume of the MS sample is greater than 10 L, the system may filter all but 10 L of the MS sample in the field, and ship the filtered sample and the remaining 10 L of source water to the laboratory. In this case, the laboratory must spike the remaining 10 L of water and filter it through the filter used to collect the balance of the sample in the field.

(iii) Flow cytometer-counted spiking suspensions must be used for MS samples and ongoing precision and recovery (OPR) samples.

(b) E. coli. Systems must use methods for enumeration of E. coli in source water approved in R309-200-4(3) and (4).

(i) The time from sample collection to initiation of analysis may not exceed 30 hours unless the system meets the condition of paragraph (b)([~~2~~]ii) of this section.

(ii) The Executive Secretary may approve on a case-by-case basis the holding of an E. coli sample for up to 48 hours between sample collection and initiation of analysis if the Executive Secretary determines that analyzing an E. coli sample within 30 hours is not feasible. E. coli samples held between 30 to 48 hours must be analyzed by the Colilert reagent version of Standard Method 9223B as listed in R309-200-4(3) and (4).

(iii) Systems must maintain samples between 0 deg.C and 10 deg. C during storage and transit to the laboratory.

(c) Turbidity. Systems must use methods for turbidity measurement approved in R309-200-4(3) and (4).

(6) Approved laboratories.

(a) Cryptosporidium. Systems must have Cryptosporidium samples analyzed by a laboratory that is approved under EPA's Laboratory Quality Assurance Evaluation Program for Analysis of Cryptosporidium in Water or a laboratory that has been certified for Cryptosporidium analysis by an equivalent State laboratory certification program.

(b) E. coli. Any laboratory certified by the EPA, the National Environmental Laboratory Accreditation Conference or the State for total coliform or fecal coliform analysis under R309-

200-4(3) and (4) is approved for E. coli analysis under this subpart when the laboratory uses the same technique for E. coli that the laboratory uses for R309-200-4(3), (4) and in R444-14-4(1). [and (4).]

(c) Turbidity. Measurements of turbidity must be made by a party approved by the State.

(7) Reporting source water monitoring results.

(a) Systems must report results from the source water monitoring required under R309-215-15(2) no later than 10 days after the end of the first month following the month when the sample is collected.

(b) (i) All systems serving at least 10,000 people must report the results from the initial source water monitoring required under R309-215-15(2)(a) to EPA electronically at https://intranet.epa.gov/lt2/.

(ii) If a system is unable to report monitoring results electronically, the system may use an alternative approach for reporting monitoring results that EPA approves.

(c) Systems serving fewer than 10,000 people must report results from the initial source water monitoring required under R309-215-15(2)(a) to the Executive Secretary.

(d) All systems must report results from the second round of source water monitoring required under R309-215-15(2)(b) to the Executive Secretary.

(e) Systems must report the applicable information in paragraphs (e)([1]i) and ([2]ii) of this section for the source water monitoring required under R309-215-15(2).

(i) Systems must report the following data elements for each Cryptosporidium analysis:

(A) PWS ID.

(B) Facility ID.

(C) Sample collection date.

(D) Sample type (field or matrix spike).

(E) Sample volume filtered (L), to nearest 1/4 L.

(F) Was 100% of filtered volume examined.

(G) [and the] Number of oocysts counted.

(H[G]) For matrix spike samples, systems must also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples.

(I[H]) For samples in which less than 10 L is filtered or less than 100% of the sample volume is examined, systems must also report the number of filters used and the packed pellet volume.

(J[I]) For samples in which less than 100% of sample volume is examined, systems must also report the volume of resuspended concentrate and volume of this resuspension processed through immunomagnetic separation.

(ii) Systems must report the following data elements for each E. coli analysis:

(A) PWS ID.

(B) Facility ID.

(C) Sample collection date.

(D) Analytical method number.

(E) Method type.

(F) Source type (flowing stream, lake/reservoir, GWUDI).

(G) E. coli/100 mL.

(H) Turbidity.[

~~(I)~~] (Systems serving fewer than 10,000 people that are not required to monitor for turbidity under R309-215-15(2) are not required to report turbidity with their E. coli results.)

(8) Grandfathering previously collected data.

(a) (i) Systems may comply with the initial source water monitoring requirements of R309-215-15(2)(a) by grandfathering sample results collected before the system is required to begin monitoring (i.e., previously collected data). To be grandfathered, the sample results and analysis must meet the criteria in this section and the Executive Secretary must approve.

(ii) A filtered system may grandfather Cryptosporidium samples to meet the requirements of R309-215-15(2)(a) when the system does not have corresponding E. coli and turbidity samples. A system that grandfathers Cryptosporidium samples without E. coli and turbidity samples is not required to collect E. coli and turbidity samples when the system completes the requirements for Cryptosporidium monitoring under R309-215-15(2)(a).

(b) E. coli sample analysis. The analysis of E. coli samples must meet the analytical method and approved laboratory requirements of R309-215-15(5) through R309-215-15(6)[~~141.705~~].

(c) Cryptosporidium sample analysis. The analysis of Cryptosporidium samples must meet the criteria in this paragraph.

(i) Laboratories analyzed Cryptosporidium samples using one of the analytical methods in paragraphs (c)(i)(A) through (D) of this section, which are incorporated by reference. You may obtain a copy of these methods on-line from the United States Environmental Protection Agency, Office of Ground Water and Drinking Water, 1201 Constitution Ave, NW, Washington, DC 20460 (Telephone: 800-426-4791). You may inspect a copy at the Water Docket in the EPA Docket Center, 1301 Constitution Ave., NW, Washington, DC, (Telephone: 202-566-2426) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. You may also obtain a copy of these methods by contacting the Division of Drinking Water at 801-536-4200.

(A) Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/ FA, 2005, United States Environmental Protection Agency, EPA-815-R-05-002.

(B) Method 1622: Cryptosporidium in Water by Filtration/IMS/FA, 2005, United States Environmental Protection Agency, EPA-815-R-05-001.

(C) Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/ FA, 2001, United States Environmental Protection Agency, EPA-821-R-01-025.

(D) Method 1622: Cryptosporidium in Water by Filtration/IMS/FA, 2001, United States Environmental Protection Agency, EPA-821-R-01-026.

(E) Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/ FA, 1999, United States Environmental Protection Agency, EPA-821-R-99-006.

(F) Method 1622: Cryptosporidium in Water by Filtration/IMS/FA, 1999, United States Environmental Protection Agency, EPA-821-R-99-001.

(ii) For each Cryptosporidium sample, the laboratory analyzed at least 10 L of sample or at least 2 mL of packed pellet or as much volume as could be filtered by 2 filters that EPA approved for the methods listed in paragraph (c)(1) of this section.

(d) Sampling location. The sampling location must meet the conditions in R309-215-15(4).

(e) Sampling frequency. Cryptosporidium samples were collected no less frequently than each calendar month on a regular schedule, beginning no earlier than January 1999. Sample collection intervals may vary for the conditions specified in R309-215-15(3)(b)(i) and (ii) if the system provides documentation of the condition when reporting monitoring results.

(i) The Executive Secretary may approve grandfathering of previously collected data where there are time gaps in the sampling frequency if the system conducts additional monitoring the Executive Secretary specifies to ensure that the data used to comply with the initial source water monitoring requirements of R309-215-15(2)(a) are seasonally representative and unbiased.

(ii) Systems may grandfather previously collected data where the sampling frequency within each month varied. If the Cryptosporidium sampling frequency varied, systems must follow the monthly averaging procedure in R309-215-15(11)(b)(v) when calculating the bin classification for filtered systems.

(f) Reporting monitoring results for grandfathering. Systems that request to grandfather previously collected monitoring results must report the following information by the applicable dates listed in this paragraph. Systems serving at least 10,000 people must report this information to EPA unless the Executive Secretary approves reporting to the Executive Secretary rather than EPA. Systems serving fewer than 10,000 people must report this information to the Executive Secretary.

(i) Systems must report that they intend to submit previously collected monitoring results for grandfathering. This report must specify the number of previously collected results the system will submit, the dates of the first and last sample, and whether a system will conduct additional source water monitoring to meet the requirements of R309-215-15(2)(a). Systems must report this information no later than the date the sampling schedule under R309-215-15(3) is required.

(ii) Systems must report previously collected monitoring results for grandfathering, along with the associated documentation listed in paragraphs (f)(ii)(A) through (D) of this section, no later than two months after the applicable date listed in R309-215-15(2)(c).

(A) For each sample result, systems must report the applicable data elements in R309-215-15(7).

(B) Systems must certify that the reported monitoring results include all results the system generated during the time period beginning with the first reported result and ending with the final reported result. This applies to samples that were collected from the sampling location specified for source water monitoring under this subpart, not spiked, and analyzed using the laboratory's routine process for the analytical methods listed in this section.

(C) Systems must certify that the samples were representative of a plant's source water(s) and the source water(s) have not changed. Systems must report a description of the sampling location(s), which must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including points of chemical addition and filter backwash recycle.

(D) For Cryptosporidium samples, the laboratory or laboratories that analyzed the samples must provide a letter certifying that the quality control criteria specified in the methods listed in paragraph (c)(i[~~1~~]) of this section were met for each sample batch associated with the reported results. Alternatively, the laboratory may provide bench sheets and sample examination

report forms for each field, matrix spike, IPR, OPR, and method blank sample associated with the reported results.

(g) If the Executive Secretary determines that a previously collected data set submitted for grandfathering was generated during source water conditions that were not normal for the system, such as a drought, the Executive Secretary may disapprove the data. Alternatively, the Executive Secretary may approve the previously collected data if the system reports additional source water monitoring data, as determined by the Executive Secretary, to ensure that the data set used under R309-215-15(11) represents average source water conditions for the system.

(h) If a system submits previously collected data that fully meet the number of samples required for initial source water monitoring under R309-215-15(2)(a) and some of the data are rejected due to not meeting the requirements of this section, systems must conduct additional monitoring to replace rejected data on a schedule the Executive Secretary approves. Systems are not required to begin this additional monitoring until two months after notification that data have been rejected and additional monitoring is necessary.

(9) Disinfection Profiling and Benchmarking Requirements - Requirements when making a significant change in disinfection practice.

(a) Following the completion of initial source water monitoring under R309-215-15(2)(a), a system that plans to make a significant change to its disinfection practice, as defined in paragraph (b) of this section, must develop disinfection profiles and calculate disinfection benchmarks for Giardia lamblia and viruses as described in R309-215-15(10). Prior to changing the disinfection practice, the system must notify the Executive Secretary and must include in this notice the information in paragraphs (a)(i) through (iii) of this section.

(i) A completed disinfection profile and disinfection benchmark for Giardia lamblia and viruses as described in R309-215-15(10).

(ii) A description of the proposed change in disinfection practice.

(iii) An analysis of how the proposed change will affect the current level of disinfection.

(b) Significant changes to disinfection practice are defined as follows:

(i) Changes to the point of disinfection;

(ii) Changes to the disinfectant(s) used in the treatment plant;

(iii) Changes to the disinfection process; or

(iv) Any other modification identified by the Executive Secretary as a significant change to disinfection practice.

(10) Developing the disinfection profile and benchmark.

(a) Systems required to develop disinfection profiles under R309-215-15(9) must follow the requirements of this section. Systems must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for Giardia lamblia and viruses. If systems monitor more frequently, the monitoring frequency must be evenly spaced. Systems that operate for fewer than 12 months per year must monitor weekly during the period of operation. Systems must determine log inactivation for Giardia lamblia through the entire plant, based on $CT_{99.9}$ values in Tables 1.1 through 1.6, 2.1 and 3.1 of Section 141.74(b) in the code of Federal Regulations as applicable (available from the Division). Systems must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the Executive Secretary.

(b) Systems with a single point of disinfectant application prior to the entrance to the distribution system must conduct the monitoring in paragraphs (b)(i) through (iv) of this section.

Systems with more than one point of disinfectant application must conduct the monitoring in paragraphs (b)(i) through (iv) of this section for each disinfection segment. Systems must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in R309-200-4(3) and (4).

(i) For systems using a disinfectant other than UV, the temperature of the disinfected water must be measured at each residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the Executive Secretary.

(ii) For systems using chlorine, the pH of the disinfected water must be measured at each chlorine residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the Executive Secretary.

(iii) The disinfectant contact time(s) (t) must be determined during peak hourly flow.

(iv) The residual disinfectant concentration(s) (C) of the water before or at the first customer and prior to each additional point of disinfectant application must be measured during peak hourly flow.

(c) In lieu of conducting new monitoring under paragraph (b) of this section, systems may elect to meet the requirements of paragraphs (c)(i[~~1~~]) or (ii[~~2~~]) of this section.

(i) Systems that have at least one year of existing data that are substantially equivalent to data collected under the provisions of paragraph (b) of this section may use these data to develop disinfection profiles as specified in this section if the system has neither made a significant change to its treatment practice nor changed sources since the data were collected. Systems may develop disinfection profiles using up to three years of existing data.

(ii) Systems may use disinfection profile(s) developed under R309-215-14 in lieu of developing a new profile if the system has neither made a significant change to its treatment practice nor changed sources since the profile was developed. Systems that have not developed a virus profile under R309-251-14 must develop a virus profile using the same monitoring data on which the Giardia lamblia profile is based.

(d) Systems must calculate the total inactivation ratio for Giardia lamblia as specified in paragraphs (d)(i) through (iii) of this section.

(i) Systems using only one point of disinfectant application may determine the total inactivation ratio for the disinfection segment based on either of the methods in paragraph (d)(1)(i) or (ii) of this section.

(A) Determine one inactivation ratio ($CTcalc/CT_{99.9}$) before or at the first customer during peak hourly flow.

(B) Determine successive $CTcalc/ CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. The system must calculate the total inactivation ratio by determining ($CTcalc/CT_{99.9}$) for each sequence and then adding the ($CTcalc/ CT_{99.9}$) values together to determine the sum of[~~(S~~] ($CTcalc/CT_{99.9}$)[~~)~~].

(ii) Systems using more than one point of disinfectant application before the first customer must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CTcalc/ CT_{99.9}$) value of each segment and the sum of[~~(S~~] ($CTcalc/CT_{99.9}$)[~~)~~] must be calculated using the method in paragraph (d)(i)(B) of this section.

(iii) The system must determine the total logs of inactivation by multiplying the value calculated in paragraph (d)(i) or (d)(ii) of this section by 3.0.

(iv) Systems must calculate the log of inactivation for viruses using a protocol approved by the Executive Secretary.

(e) Systems must use the procedures specified in paragraphs (e)(i) and (ii) of this section to calculate a disinfection benchmark.

(i) For each year of profiling data collected and calculated under paragraphs (a) through (d) of this section, systems must determine the lowest mean monthly level of both Giardia lamblia and virus inactivation. Systems must determine the mean Giardia lamblia and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly Giardia lamblia and virus log inactivation by the number of values calculated for that month.

(ii) The disinfection benchmark is the lowest monthly mean value (for systems with one year of profiling data) or the mean of the lowest monthly mean values (for systems with more than one year of profiling data) of Giardia lamblia and virus log inactivation in each year of profiling data.

(11) Treatment Technique Requirements - Bin classification for filtered systems.

(a) Following completion of the initial round of source water monitoring required under R309-215-15(2)(a), filtered systems must calculate an initial Cryptosporidium bin concentration for each plant for which monitoring was required. Calculation of the bin concentration must use the Cryptosporidium results reported under R309-215-15(2)(a) and must follow the procedures in paragraphs (b)(i) through (v) of this section.

(b)(i) For systems that collect a total of at least 48 samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

(ii) For systems that collect a total of at least 24 samples, but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which Cryptosporidium samples were collected.

(iii) For systems that serve fewer than 10,000 people and monitor for Cryptosporidium for only one year (i.e., collect 24 samples in 12 months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

(iv) For systems with plants operating only part of the year that monitor fewer than 12 months per year under R309-215-15(2)(e), the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of Cryptosporidium monitoring.

(v) If the monthly Cryptosporidium sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification in paragraphs (b)(i) through (iv) of this section.

(c) Filtered systems must determine their initial bin classification from the following [~~table~~] and using the Cryptosporidium bin concentration calculated under paragraphs (a) and (b) of this section:

(i) Systems that are required to monitor for Cryptosporidium under R309-215-15(2):

(A) with a cryptosporidium concentration of less than 0.075 oocyst/L, the bin classification is Bin 1.

(B) with a cryptosporidium concentration of 0.075 oocysts/L to less than 1.0 oocysts/L, the bin classification is Bin 2.

(C) with a cryptosporidium concentration of 1.0 oocysts/L to less than 3.0 oocysts/L, the bin classification is Bin 3.

(D) with a cryptosporidium concentration of equal to or greater than 3.0 oocysts/L, the bin classification is Bin 4.

(ii) Systems serving fewer than 10,000 people and not required to monitor for Cryptosporidium under R309-215-15(2)(a)(iii), the concentration of cryptosporidium is not applicable and their bin classification is Bin 1.

(iii) Based on calculations in paragraph (a) or (d) of this section, as applicable.

(d) Following completion of the second round of source water monitoring required under R309-215-15(2)(b), filtered systems must recalculate their Cryptosporidium bin concentration using the Cryptosporidium results reported under R309-215-15(2)(b) and following the procedures in paragraphs (b)(i) through (iv) of this section. Systems must then redetermine their bin classification using this bin concentration and the table in paragraph (c) of this section.

(e)(i) Filtered systems must report their initial bin classification under paragraph (c) of this section to the Executive Secretary for approval no later than 6 months after the system is required to complete initial source water monitoring based on the schedule in R309-215-15(2)(c).

(ii) Systems must report their bin classification under paragraph (d) of this section to the Executive Secretary for approval no later than 6 months after the system is required to complete the second round of source water monitoring based on the schedule in R309-215-15(2)(c).

(iii) The bin classification report to the Executive Secretary must include a summary of source water monitoring data and the calculation procedure used to determine bin classification.

(f) Failure to comply with the conditions of paragraph (e) of this section is a violation of the treatment technique requirement.

(12) Filtered system additional Cryptosporidium treatment requirements.

(a) Filtered systems must provide the level of additional treatment for Cryptosporidium specified in this paragraph based on their bin classification as determined under R309-215-15(11) and according to the schedule in R309-215-15(13). The filtration treatment used by the system in this paragraph must be utilized in full compliance with the requirements of R309-200-5(5), R309-200-7, R309-215-8 and 9.

(i) If the system bin classification is Bin 1 and the system uses:

(A) Conventional filtration treatment including softening there is no additional cryptosporidium treatment required.

(B) Direct filtration there is no additional cryptosporidium treatment required.

(C) Slow sand or diatomaceous earth filtration there is no additional cryptosporidium treatment required.

(D) Alternative filtration technologies there is no additional cryptosporidium treatment required.

(ii) If the system bin classification is Bin 2 and the system uses:

(A) Conventional filtration treatment including softening there is an additional 1-log cryptosporidium treatment required.

(B) Direct filtration there is an additional 1.5-log cryptosporidium treatment required.

(C) Slow sand or diatomaceous earth filtration there is an additional 1-log cryptosporidium treatment required.

(D) Alternative filtration technologies there is an additional cryptosporidium treatment required as determined by the Executive Secretary such that the total Cryptosporidium removal an inactivation is at least 4.0-log.

(iii) If the system bin classification is Bin 3 and the system uses:

(A) Conventional filtration treatment including softening there is an additional 2-log cryptosporidium treatment required.

(B) Direct filtration there is an additional 2.5-log cryptosporidium treatment required.

(C) Slow sand or diatomaceous earth filtration there is an additional 2-log cryptosporidium treatment required.

(D) Alternative filtration technologies there is an additional cryptosporidium treatment required as determined by the Executive Secretary such that the total Cryptosporidium removal an inactivation is at least 5.0-log.

(iv) If the system bin classification is Bin 4 and the system uses:

(A) Conventional filtration treatment including softening there is an additional 2.5-log cryptosporidium treatment required.

(B) Direct filtration there is an additional 3-log cryptosporidium treatment required.

(C) Slow sand or diatomaceous earth filtration there is an additional 2.5-log cryptosporidium treatment required.

(D) Alternative filtration technologies there is an additional cryptosporidium treatment required as determined by the Executive Secretary such that the total Cryptosporidium removal an inactivation is at least 5.5-log.

(b)(i) Filtered systems must use one or more of the treatment and management options listed in R309-215-15(14), termed the microbial toolbox, to comply with the additional Cryptosporidium treatment required in paragraph (a) of this section.

(ii) Systems classified in Bin 3 and Bin 4 must achieve at least 1-log of the additional Cryptosporidium treatment required under paragraph (a) of this section using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as described in R309-215-15(15) through R309-215-15(19).

(c) Failure by a system in any month to achieve treatment credit by meeting criteria in R309-215-15(15) through R309-215-15(19) for microbial toolbox options that is at least equal to the level of treatment required in paragraph (a) of this section is a violation of the treatment technique requirement.

(d) If the Executive Secretary determines during a sanitary survey or an equivalent source water assessment that after a system completed the monitoring conducted under R309-215-15(2)(a) or R309-215-15(2)(b), significant changes occurred in the system's watershed that could lead to increased contamination of the source water by Cryptosporidium, the system must take actions specified by the Executive Secretary to address the contamination. These actions may include additional source water monitoring and/or implementing microbial toolbox options listed in R309-215-15(14).

(13) Schedule for compliance with Cryptosporidium treatment requirements.

(a) Following initial bin classification under R309-215-15(11)(c), filtered systems must provide the level of treatment for Cryptosporidium required under R309-215-15(12) according to the schedule in paragraph (c) of this section.

(b) Cryptosporidium treatment compliance dates.

(i) Systems that serve at least 100,000 people must comply with Cryptosporidium treatment requirements no later than April 1, 2012.

(ii) Systems that serve from 50,000 to 99,999 people must comply with Cryptosporidium treatment requirements no later than October 1, 2012.

(iii) Systems that serve from 10,000 to 49,999 people must comply with Cryptosporidium treatment requirements no later than October 1, 2013.

(iv) Systems that serve less than 10,000 people must comply with Cryptosporidium treatment requirements no later than October 1, 2014.

(v) The Executive Secretary may allow up to an additional two years for complying with the treatment requirement for systems making capital improvements.

(c) If the bin classification for a filtered system changes following the second round of source water monitoring, as determined under R309-215-15(11)(d), the system must provide the level of treatment for Cryptosporidium required under R309-215-15(12) on a schedule the Executive Secretary approves.

(14) Microbial toolbox options for meeting Cryptosporidium treatment requirements.

(a) Systems receive the treatment credits listed in the table in paragraph (b) of this section by meeting the conditions for microbial toolbox options described in R309-215-15(15) through R309-215-15(19). Systems apply these treatment credits to meet the treatment requirements in R309-215-15(12).

(b) The following sub-section summarizes options in the microbial toolbox and the Cryptosporidium treatment credit with design and implementation criteria.

(i) Source Protection and Management Toolbox Options:

(A) Watershed control program: 0.5-log credit for Executive Secretary-approved program comprising required elements, annual program status report to Executive Secretary, and regular watershed survey. [~~Unfiltered systems are not eligible for credit.~~] Specific criteria are in R309-215-15(15) (a).

(B) Alternative source/intake management: No prescribed credit. Systems may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies. Specific criteria are in R309-215-15(15) (b).

(ii) Pre Filtration Toolbox Options:

(A) Presedimentation basin with coagulation: 0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative Executive Secretary-approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through basins. Specific criteria are in R309-215-15(16) (a).

(B) Two-stage lime softening: 0.5-log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment. Specific criteria are in R309-215-15(16) (b).

(C) Bank filtration: 0.5-log credit for 25-foot setback; 1.0-log credit for 50-foot setback; aquifer must be unconsolidated sand containing at least 10 percent fines; average turbidity in wells must be less than 1 NTU. Systems using wells followed by filtration when conducting source water monitoring must sample the well to determine bin classification and are not eligible for additional credit. Specific criteria are in R309-215-15(16) (c).

(iii) Treatment Performance Toolbox Options:

(A) Combined filter performance: 0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month. Specific criteria are in R309-215-15(17) (a).

(B) Individual filter performance: 0.5-log credit (in addition to 0.5-log combined filter performance credit) if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in two consecutive measurements in any filter. Specific criteria are in R309-215-15(17) (b).

(C) Demonstration of performance: Credit awarded to unit process or treatment train based on a demonstration to the Executive Secretary with a Executive Secretary- approved protocol. Specific criteria are in R309-215-15(17) (c).

(iv) Additional Filtration Toolbox Options:

(A) Bag or cartridge filters (individual filters): Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety. Specific criteria are in R309-215-15(18) (a).

(B) Bag or cartridge filters (in series): Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety. Specific criteria are in R309-215-15(18) (a).

(C) Membrane filtration: Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing. Specific criteria are in R309-215-15(18) (b).

(D) Second stage filtration: 0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter. Specific criteria are in R309-215-15(18) (c).

(E) Slow sand filters: 2.5-log credit as a secondary filtration step; 3.0-log credit as a primary filtration process. No prior chlorination for either option. Specific criteria are in R309-215-15(18) (d).

(v) Inactivation Toolbox Options:

(A) Chlorine dioxide: Log credit based on measured CT in relation to CT table. Specific criteria in R309-215-15(19) (b).

(B) Ozone: Log credit based on measured CT in relation to CT table. Specific criteria in R309-215-15(19) (b).

(C) UV: Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions. Specific criteria in R309-215-15(19) (d).

(15) Source toolbox components.

(a) Watershed control program. Systems receive 0.5-log Cryptosporidium treatment credit for implementing a watershed control program that meets the requirements of this section.

(i) Systems that intend to apply for the watershed control program credit must notify the Executive Secretary of this intent no later than two years prior to the treatment compliance date applicable to the system in R309-215-15(13).

(ii) Systems must submit to the Executive Secretary a proposed watershed control plan no later than one year before the applicable treatment compliance date in R309-215-15(13). The Executive Secretary must approve the watershed control plan for the system to receive watershed control program treatment credit. The watershed control plan must include the elements in paragraphs (a)(ii)(A) through (D) of this section.

(A) Identification of an "area of influence" outside of which the likelihood of Cryptosporidium or fecal contamination affecting the treatment plant intake is not significant.

This is the area to be evaluated in future watershed surveys under paragraph (a)(v)(B) of this section.

(B) Identification of both potential and actual sources of Cryptosporidium contamination and an assessment of the relative impact of these sources on the system's source water quality.

(C) An analysis of the effectiveness and feasibility of control measures that could reduce Cryptosporidium loading from sources of contamination to the system's source water.

(D) A statement of goals and specific actions the system will undertake to reduce source water Cryptosporidium levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan.

(iii) Systems with existing watershed control programs (i.e., programs in place on January 5, 2006) are eligible to seek this credit. Their watershed control plans must meet the criteria in paragraph (a)(ii) of this section and must specify ongoing and future actions that will reduce source water Cryptosporidium levels.

(iv) If the Executive Secretary does not respond to a system regarding approval of a watershed control plan submitted under this section and the system meets the other requirements of this section, the watershed control program will be considered approved and 0.5 log Cryptosporidium treatment credit will be awarded unless and until the Executive Secretary subsequently withdraws such approval.

(v) Systems must complete the actions in paragraphs (a)(v)(A) through (C) of this section to maintain the 0.5-log credit.

(A) Submit an annual watershed control program status report to the Executive Secretary. The annual watershed control program status report must describe the system's implementation of the approved plan and assess the adequacy of the plan to meet its goals. It must explain how the system is addressing any shortcomings in plan implementation, including those previously identified by the Executive Secretary or as the result of the watershed survey conducted under paragraph (a)(v)(B) of this section. It must also describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. If a system determines during implementation that making a significant change to its approved watershed control program is necessary, the system must notify the Executive Secretary prior to making any such changes. If any change is likely to reduce the level of source water protection, the system must also list in its notification the actions the system will take to mitigate this effect.

(B) Undergo a watershed sanitary survey every three years for community water systems and every five years for non-community water systems and submit the survey report to the Executive Secretary. The survey must be conducted according to State guidelines and by persons the Executive Secretary approves.

(I) The watershed sanitary survey must meet the following criteria: encompass the region identified in the Executive Secretary-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water Cryptosporidium levels; and identify any significant new sources of Cryptosporidium.

(II) If the Executive Secretary determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, systems must undergo another watershed sanitary survey by a date the Executive Secretary requires, which may be earlier than the regular date in paragraph (a)(v)(B) of this section.

(C) The system must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. The Executive Secretary may approve systems to withhold from the public portions of the annual status report, watershed control plan, and watershed sanitary survey based on water supply security considerations.

(vi) If the Executive Secretary determines that a system is not carrying out the approved watershed control plan, the Executive Secretary may withdraw the watershed control program treatment credit.

(b) Alternative source. (i) A system may conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source monitoring). If the Executive Secretary approves, a system may determine its bin classification under R309-215-15(11) based on the alternative source monitoring results.

(ii) If systems conduct alternative source monitoring under paragraph (b)(i) of this section, systems must also monitor their current plant intake concurrently as described in R309-215-15(2).

(iii) Alternative source monitoring under paragraph (b)(i) of this section must meet the requirements for source monitoring to determine bin classification, as described in R309-215-15(2) through R309-215-15(7). Systems must report the alternative source monitoring results to the Executive Secretary, along with supporting information documenting the operating conditions under which the samples were collected.

(iv) If a system determines its bin classification under R309-215-15(11) using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the system must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in R309-215-15(13).

(16) Pre-filtration treatment toolbox components.

(a) Presedimentation. Systems receive 0.5-log Cryptosporidium treatment credit for a presedimentation basin during any month the process meets the criteria in this paragraph.

(i) The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or GWUDI source.

(ii) The system must continuously add a coagulant to the presedimentation basin.

(iii) The presedimentation basin must achieve the performance criteria in paragraph (iii)(A) or (B) of this section.

(A) Demonstrates at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements in the presedimentation process influent and effluent and must be calculated as follows: log10(monthly mean of daily influent turbidity) minus log10(monthly mean of daily effluent turbidity).

(B) Complies with Executive Secretary-approved performance criteria that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

(b) Two-stage lime softening. Systems receive an additional 0.5-log Cryptosporidium treatment credit for a two-stage lime softening plant if chemical addition and hardness

precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or GWUDI source.

(c) Bank filtration. Systems receive Cryptosporidium treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this paragraph. Systems using bank filtration when they begin source water monitoring under R309-215-15(2)(a) must collect samples as described in R309-215-15(4)(d) and are not eligible for this credit.

(i) Wells with a ground water flow path of at least 25 feet receive 0.5-log treatment credit; wells with a ground water flow path of at least 50 feet receive 1.0-log treatment credit. The ground water flow path must be determined as specified in paragraph (c)(iv) of this section.

(ii) Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system must characterize the aquifer at the well site to determine aquifer properties. Systems must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

(iii) Only horizontal and vertical wells are eligible for treatment credit.

(iv) For vertical wells, the ground water flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100 year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the ground water flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

(v) Systems must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the system must report this result to the Executive Secretary and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the Executive Secretary determines that microbial removal has been compromised, the Executive Secretary may revoke treatment credit until the system implements corrective actions approved by the Executive Secretary to remediate the problem.

(vi) Springs and infiltration galleries are not eligible for treatment credit under this section, but are eligible for credit under R309-215-15(17)(c).

(vii) Bank filtration demonstration of performance. The Executive Secretary may approve Cryptosporidium treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in paragraphs (c)(i)-(v) of this section.

(A) The study must follow a Executive Secretary-approved protocol and must involve the collection of data on the removal of Cryptosporidium or a surrogate for Cryptosporidium and related hydrogeologic and water quality parameters during the full range of operating conditions.

(B) The study must include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).

(17) Treatment performance toolbox components.

(a) Combined filter performance. Systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log Cryptosporidium treatment credit during

any month the system meets the criteria in this paragraph. Combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in R309-200-4 (3) and (4).

(b) Individual filter performance. Systems using conventional filtration treatment or direct filtration treatment receive 0.5-log Cryptosporidium treatment credit, which can be in addition to the 0.5-log credit under paragraph (a) of this section, during any month the system meets the criteria in this paragraph. Compliance with these criteria must be based on individual filter turbidity monitoring as described in R309-215-9(4) or (5), as applicable.

(i) The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.

(ii) No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart.

(iii) Any system that has received treatment credit for individual filter performance and fails to meet the requirements of paragraph (b)(i) or (ii) of this section during any month does not receive a treatment technique violation under R309-215-15(12)(c) if the Executive Secretary determines the following:

(A) The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant design, operation, and maintenance.

(B) The system has experienced no more than two such failures in any calendar year.

(c) Demonstration of performance. The Executive Secretary may approve Cryptosporidium treatment credit for drinking water treatment processes based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than or less than the prescribed treatment credits in R309-215-15(12) or R309-215-15(16) through R309-215-15(19) and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.

(i) Systems cannot receive the prescribed treatment credit for any toolbox box option in R309-215-15(16) through R309-215-15(19) if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this paragraph.

(ii) The demonstration of performance study must follow a Executive Secretary-approved protocol and must demonstrate the level of Cryptosporidium reduction the treatment process will achieve under the full range of expected operating conditions for the system.

(iii) Approval by the Executive Secretary must be in writing and may include monitoring and treatment performance criteria that the system must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The Executive Secretary may designate such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.

(18) Additional filtration toolbox components.

(a) Bag and cartridge filters. Systems receive Cryptosporidium treatment credit of up to 2.0-log for individual bag or cartridge filters and up to 2.5-log for bag or cartridge filters operated in series by meeting the criteria in paragraphs (a)(i) through (x) of this section. To be eligible for this credit, systems must report the results of challenge testing that meets the requirements of paragraphs (a)(ii) through (ix) of this section to the Executive Secretary. The filters must treat the entire plant flow taken from a surface water source.

(i) The Cryptosporidium treatment credit awarded to bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that is conducted

according to the criteria in paragraphs (a)(ii) through (a)(ix) of this section. A factor of safety equal to 1-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal credit. Systems may use results from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria specified in paragraphs (a)(ii) through (ix) of this section.

(ii) Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the system will use for removal of Cryptosporidium. Bag or cartridge filters must be challenge tested in the same configuration that the system will use, either as individual filters or as a series configuration of filters.

(iii) Challenge testing must be conducted using Cryptosporidium or a surrogate that is removed no more efficiently than Cryptosporidium. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate must be determined using a method capable of discreetly quantifying the specific microorganism or surrogate used in the test; gross measurements such as turbidity may not be used.

(iv) The maximum feed water concentration that can be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (i.e., filtrate detection limit) and must be calculated using the following equation: Maximum Feed Concentration = 1×10^4 x (Filtrate Detection Limit).

(v) Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

(vi) Each filter evaluated must be tested for a duration sufficient to reach 100 percent of the terminal pressure drop, which establishes the maximum pressure drop under which the filter may be used to comply with the requirements of this subpart.

(vii) Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values using the following equation: $LRV = LOG_{10}(C_f)-LOG_{10}(C_p)$ Where: LRV = log removal value demonstrated during challenge testing; C_f = the feed concentration measured during the challenge test; and C_p = the filtrate concentration measured during the challenge test. In applying this equation, the same units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, then the term C_p must be set equal to the detection limit.

(viii) Each filter tested must be challenged with the challenge particulate during three periods over the filtration cycle: within two hours of start-up of a new filter; when the pressure drop is between 45 and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRV_{filter}) must be assigned the value of the minimum LRV observed during the three challenge periods for that filter.

(ix) If fewer than 20 filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the 10th percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

(x) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and submitted to the Executive Secretary.

(b) Membrane filtration.

(i) Systems receive Cryptosporidium treatment credit for membrane filtration that meets the criteria of this paragraph. Membrane cartridge filters that meet the definition of membrane filtration in R309-110 are eligible for this credit. The level of treatment credit a system receives is equal to the lower of the values determined under paragraph (b)(i)(A) and (B) of this section.

(A) The removal efficiency demonstrated during challenge testing conducted under the conditions in paragraph (b)(ii) of this section.

(B) The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process under the conditions in paragraph (b)(iii) of this section.

(ii) Challenge Testing. The membrane used by the system must undergo challenge testing to evaluate removal efficiency, and the system must report the results of challenge testing to the Executive Secretary. Challenge testing must be conducted according to the criteria in paragraphs (b)(ii)(A) through (G) of this section. Systems may use data from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria in paragraphs (b)(ii)(A) through (G) of this section.

(A) Challenge testing must be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

(B) Challenge testing must be conducted using Cryptosporidium oocysts or a surrogate that is removed no more efficiently than Cryptosporidium oocysts. The organism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity may not be used.

(C) The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation: Maximum Feed Concentration = $3.16 \times 10^6 \times$ (Filtrate Detection Limit).

(D) Challenge testing must be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (i.e., backwashing).

(E) Removal efficiency of a membrane module must be calculated from the challenge test results and expressed as a log removal value according to the following equation: $LRV = LOG_{10}(C_f) \times LOG_{10}(C_p)$ Where: LRV = log removal value demonstrated during the challenge test; C_f = the feed concentration measured during the challenge test; and C_p = the filtrate concentration measured during the challenge test. Equivalent units must be used for the feed and

filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p is set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

(F) The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($LRV_{C\text{-}Test}$). If fewer than 20 modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested. If 20 or more modules are tested, then $LRV_{C\text{-}Test}$ is equal to the 10th percentile of the representative LRVs among the modules tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

(G) The challenge test must establish a quality control release value (QCRV) for a non-destructive performance test that demonstrates the Cryptosporidium removal capability of the membrane filtration module. This performance test must be applied to each production membrane module used by the system that was not directly challenge tested in order to verify Cryptosporidium removal capability. Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test.

(H) If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the non-destructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of, and determine a new QCRV for, the modified membrane must be conducted and submitted to the Executive Secretary.

(iii) Direct integrity testing. Systems must conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration process and meets the requirements described in paragraphs (b)(iii)(A) through (F) of this section. A direct integrity test is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (i.e., one or more leaks that could result in contamination of the filtrate).

(A) The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

(B) The direct integrity method must have a resolution of 3 micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.

(C) The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded to the membrane filtration process by the Executive Secretary, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity must be determined using the approach in either paragraph (b)(iii)(C)(I) or (II) of this section as applicable to the type of direct integrity test the system uses.

(I) For direct integrity tests that use an applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation: $LRV_{DIT} = LOG_{10} (Q_p /(VCF \times Q_{breach}))$ Where: LRV_{DIT} = the sensitivity of the direct integrity test; Q_p = total design filtrate flow from the membrane unit; Q_{breach} = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured, and VCF = volumetric

concentration factor. The volumetric concentration factor is the ratio of the suspended solids concentration on the high pressure side of the membrane relative to that in the feed water.

(II) For direct integrity tests that use a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation: $LRV_{DIT} = LOG_{10}(C_f)-LOG_{10}(C_p)$ Where: LRVDIT = the sensitivity of the direct integrity test; Cf = the typical feed concentration of the marker used in the test; and Cp = the filtrate concentration of the marker from an integral membrane unit.

(D) Systems must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the Executive Secretary.

(E) If the result of a direct integrity test exceeds the control limit established under paragraph (b)(iii)(D) of this section, the system must remove the membrane unit from service. Systems must conduct a direct integrity test to verify any repairs, and may return the membrane unit to service only if the direct integrity test is within the established control limit.

(F) Systems must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The Executive Secretary may approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for Cryptosporidium, or reliable process safeguards.

(iv) Indirect integrity monitoring. Systems must conduct continuous indirect integrity monitoring on each membrane unit according to the criteria in paragraphs (b)(iv)(A) through (E) of this section. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A system that implements continuous direct integrity testing of membrane units in accordance with the criteria in paragraphs (b)(iii)(A) through (E) of this section is not subject to the requirements for continuous indirect integrity monitoring. Systems must submit a monthly report to the Executive Secretary summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.

(A) Unless the Executive Secretary approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.

(B) Continuous monitoring must be conducted at a frequency of no less than once every 15 minutes.

(C) Continuous monitoring must be separately conducted on each membrane unit.

(D) If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (i.e., two consecutive 15-minute readings above 0.15 NTU), direct integrity testing must immediately be performed on the associated membrane unit as specified in paragraphs (b)(iii)(A) through (E) of this section.

(E) If indirect integrity monitoring includes a Executive Secretary-approved alternative parameter and if the alternative parameter exceeds a Executive Secretary-approved control limit for a period greater than 15 minutes, direct integrity testing must immediately be performed on the associated membrane units as specified in paragraphs (b)(iii)(A) through (E) of this section.

(c) Second stage filtration. Systems receive 0.5-log Cryptosporidium treatment credit for a separate second stage of filtration that consists of sand, dual media, GAC, or other fine grain media following granular media filtration if the Executive Secretary approves. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step and both filtration stages must treat the entire plant flow taken from a surface water or GWUDI

source. A cap, such as GAC, on a single stage of filtration is not eligible for this credit. The Executive Secretary must approve the treatment credit based on an assessment of the design characteristics of the filtration process.

(d) Slow sand filtration (as secondary filter). Systems are eligible to receive 2.5-log Cryptosporidium treatment credit for a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat entire plant flow taken from a surface water or GWUDI source and no disinfectant residual is present in the influent water to the slow sand filtration process. The Executive Secretary must approve the treatment credit based on an assessment of the design characteristics of the filtration process. This paragraph does not apply to treatment credit awarded to slow sand filtration used as a primary filtration process.

(19) Inactivation toolbox components.

(a) Calculation of CT values. (i) CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). Systems with treatment credit for chlorine dioxide or ozone under paragraph (b) or (c) of this section must calculate CT at least once each day, with both C and T measured during peak hourly flow as specified in R309-200-4(3) and (4).

(ii) Systems with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume. Under this approach, systems must add the Cryptosporidium CT values in each segment to determine the total CT for the treatment plant.

(b) CT values for chlorine dioxide and ozone. (i) Systems receive the Cryptosporidium treatment credit listed in this paragraph by meeting the corresponding chlorine dioxide CT value for the applicable water temperature, as described in paragraph (a) of this section.

(i) CT values ((MG)(MIN)/L) for Cryptosporidium inactivation by Chlorine Dioxide listed by the log credit with inactivation listed by water temperature in degrees Celsius.

(A) 0.25 Log Credit:

(I) less than or equal to 0.5 degrees: 159;

(II) 1 degree: 153;

(III) 2 degrees: 140;

(IV) 3 degrees: 128;

(V) 5 degrees: 107;

(VI) 7 degrees: 90;

(VII) 10 degrees: 69;

(VIII) 15 degrees: 45;

(IX) 20 degrees: 29;

(X) 25 degrees: 19; and

(XI) 30 degrees: 12.

(B) 0.5 Log Credit:

(I) less than or equal to 0.5 degrees: 319;

(II) 1 degree: 305;

(III) 2 degrees: 279;

(IV) 3 degrees: 256;

(V) 5 degrees: 214;

(VI) 7 degrees: 180;

(VII) 10 degrees: 138;

(VIII) 15 degrees: 89;
(IX) 20 degrees: 58;
(X) 25 degrees: 38; and
(XI) 30 degrees: 24.
(C) 1.0 Log Credit:
(I) less than or equal to 0.5 degrees: 637;
(II) 1 degree: 610;
(III) 2 degrees: 558;
(IV) 3 degrees: 511;
(V) 5 degrees: 429;
(VI) 7 degrees: 360;
(VII) 10 degrees: 277;
(VIII) 15 degrees: 179;
(IX) 20 degrees: 116;
(X) 25 degrees: 75; and
(XI) 30 degrees: 49.
(D) 1.5 Log Credit:
(I) less than or equal to 0.5 degrees: 956;
(II) 1 degree: 915;
(III) 2 degrees: 838;
(IV) 3 degrees: 767;
(V) 5 degrees: 643;
(VI) 7 degrees: 539;
(VII) 10 degrees: 415;
(VIII) 15 degrees: 268;
(IX) 20 degrees: 174;
(X) 25 degrees: 113; and
(XI) 30 degrees: 73.
(E) 2.0 Log Credit:
(I) less than or equal to 0.5 degrees: 1275;
(II) 1 degree: 1220;
(III) 2 degrees: 1117;
(IV) 3 degrees: 1023;
(V) 5 degrees: 858;
(VI) 7 degrees: 719;
(VII) 10 degrees: 553;
(VIII) 15 degrees: 357;
(IX) 20 degrees: 232;
(X) 25 degrees: 150; and
(XI) 30 degrees: 98.
(F) 2.5 Log Credit:
(I) less than or equal to 0.5 degrees: 1594;
(II) 1 degree: 1525;
(III) 2 degrees: 1396;
(IV) 3 degrees: 1278;

(V) 5 degrees: 1072;
(VI) 7 degrees: 899;
(VII) 10 degrees: 691;
(VIII) 15 degrees: 447;
(IX) 20 degrees: 289;
(X) 25 degrees: 188; and
(XI) 30 degrees: 122.
(G) 3.0 Log Credit:
(I) less than or equal to 0.5 degrees: 1912;
(II) 1 degree: 1830;
(III) 2 degrees: 1675;
(IV) 3 degrees: 1534;
(V) 5 degrees: 1286;
(VI) 7 degrees: 1079;
(VII) 10 degrees: 830;
(VIII) 15 degrees: 536;
(IX) 20 degrees: 347;
(X) 25 degrees: 226; and
(XI) 30 degrees: 147.

(F) Systems may use this equation to determine log credit between the indicated values above: Log credit = $(0.001506 \times (1.09116)^{Temp}) \times CT$.

(ii) Systems receive the Cryptosporidium treatment credit listed in this paragraph [~~table~~] by meeting the corresponding ozone CT values for the applicable water temperature, as described in paragraph (a) of this section. CT values ((MG)(MIN)/L) for Cryptosporidium inactivation by Ozone listed by the log credit with inactivation listed by water temperature in degrees Celsius.

(A) 0.25 Log Credit:
(I) less than or equal to 0.5 degrees: 6.0;
(II) 1 degree: 5.8;
(III) 2 degrees: 5.2;
(IV) 3 degrees: 4.8;
(V) 5 degrees: 4.0;
(VI) 7 degrees: 3.3;
(VII) 10 degrees: 2.5;
(VIII) 15 degrees: 1.6;
(IX) 20 degrees: 1.0;
(X) 25 degrees: 0.6[~~0.3~~]; and
(XI) 30 degrees: 0.39.
(B) 0.5 Log Credit:
(I) less than or equal to 0.5 degrees: 12;
(II) 1 degree: 12;
(III) 2 degrees: 10;
(IV) 3 degrees: 9.5;
(V) 5 degrees: 7.9;
(VI) 7 degrees: 6.5;

(VII) 10 degrees: 4.9;
(VIII) 15 degrees: 3.1;
(IX) 20 degrees: 2.0;
(X) 25 degrees: 1.2; and
(XI) 30 degrees: 0.78.
(C) 1.0 Log Credit:
(I) less than or equal to 0.5 degrees: 24;
(II) 1 degree: 23;
(III) 2 degrees: 21;
(IV) 3 degrees: 19;
(V) 5 degrees: 16;
(VI) 7 degrees: 13;
(VII) 10 degrees: 9.9;
(VIII) 15 degrees: 6.2;
(IX) 20 degrees: 3.9;
(X) 25 degrees: 2.5; and
(XI) 30 degrees: 1.6.
(D) 1.5 Log Credit:
(I) less than or equal to 0.5 degrees: 36;
(II) 1 degree: 35;
(III) 2 degrees: 31;
(IV) 3 degrees: 29;
(V) 5 degrees: 24;
(VI) 7 degrees: 20;
(VII) 10 degrees: 15;
(VIII) 15 degrees: 9.3;
(IX) 20 degrees: 5.9;
(X) 25 degrees: 3.7; and
(XI) 30 degrees: 2.4.
(E) 2.0 Log Credit:
(I) less than or equal to 0.5 degrees: 48;
(II) 1 degree: 46;
(III) 2 degrees: 42;
(IV) 3 degrees: 38;
(V) 5 degrees: 32;
(VI) 7 degrees: 26;
(VII) 10 degrees: 20;
(VIII) 15 degrees: 12;
(IX) 20 degrees: 7.8;
(X) 25 degrees: 4.9; and
(XI) 30 degrees: 3.1.
(F) 2.5 Log Credit:
(I) less than or equal to 0.5 degrees: 60;
(II) 1 degree: 58;
(III) 2 degrees: 52;

(IV) 3 degrees: 48;
(V) 5 degrees: 40;
(VI) 7 degrees: 33;
(VII) 10 degrees: 25;
(VIII) 15 degrees: 16;
(IX) 20 degrees: 9.8;
(X) 25 degrees: 6.2; and
(XI) 30 degrees: 3.9.
(G) 3.0 Log Credit:
(I) less than or equal to 0.5 degrees: 72;
(II) 1 degree: 69;
(III) 2 degrees: 63;
(IV) 3 degrees: 57;
(V) 5 degrees: 47;
(VI) 7 degrees: 39;
(VII) 10 degrees: 30;
(VIII) 15 degrees: 19;
(IX) 20 degrees: 12;
(X) 25 degrees: 7.4; and
(XI) 30 degrees: 4.7.

(F) Systems may use this equation to determine log credit between the indicated values: Log credit = $(0.0397 \times (1.09757)^{Temp}) \times CT$.

(c) Site-specific study. The Executive Secretary may approve alternative chlorine dioxide or ozone CT values to those listed in paragraph (b) above on a site-specific basis. The Executive Secretary must base this approval on a site-specific study a system conducts that follows a protocol approved by the Executive Secretary.

(d) Ultraviolet light. Systems receive Cryptosporidium, Giardia lamblia, and virus treatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in paragraph (d)(i) of this section. Systems must validate and monitor UV reactors as described in paragraph (d)(ii) and (iii) of this section to demonstrate that they are achieving a particular UV dose value for treatment credit.

(i) UV dose table. The treatment credits listed in Table 215-5 are for UV light at a wavelength of 254 nm as produced by a low pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing, as described in paragraph (d)(ii). The UV dose values in Table 215-5 are applicable only to post-filter applications of UV in filtered systems.

TABLE 215-5
UV Dose Table for Cryptosporidium,
Giardia lamblia, and Virus Inactivation Credit

Log credit	Cryptosporidium UV dose (mJ/cm²)	Giardia lamblia UV dose (mJ/cm²)	Virus UV dose (mJ/cm²)
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

(ii) Reactor validation testing. Systems must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV dose required in paragraph (d)(i) of this section (i.e., validated operating conditions). These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.

(A) When determining validated operating conditions, systems must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and inlet and outlet piping or channel configurations of the UV reactor.

(B) Validation testing must include the following: Full scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp.

(C) The Executive Secretary may approve an alternative approach to validation testing.

(iii) Reactor monitoring.

(A) Systems must monitor their UV reactors to determine if the reactors are operating within validated conditions, as determined under paragraph (d)(ii) of this section. This monitoring must include UV intensity as measured by a UV sensor, flow rate, lamp status, and other parameters the Executive Secretary designates based on UV reactor operation. Systems must verify the calibration of UV sensors and must recalibrate sensors in accordance with a protocol the Executive Secretary approves.

(B) To receive treatment credit for UV light, systems must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose, as described in paragraphs (d)(i) and (ii) of this section. Systems must demonstrate compliance with this condition by the monitoring required under paragraph (d)(iii)(A) of this section.

(20) Reporting requirements.

(a) Systems must report sampling schedules under R309-215-15(3) and source water monitoring results under R309-215-15(7) unless they notify the Executive Secretary that they will not conduct source water monitoring due to meeting the criteria of R309-215-15(2)(d).

(b) Filtered systems must report their Cryptosporidium bin classification as described in R309-215-15(11).

(c) Systems must report disinfection profiles and benchmarks to the Executive Secretary as described in R309-215-15(9) through R309-215-15(10) prior to making a significant change in disinfection practice.

(d) Systems must report to the Executive Secretary in accordance with the following information on the following schedule for any microbial toolbox options used to comply with treatment requirements under R309-215-15(12). Alternatively, the Executive Secretary may approve a system to certify operation within required parameters for treatment credit rather than reporting monthly operational data for toolbox options.

(i) Watershed control program (WCP).

(A) Notice of intention to develop a new or continue an existing watershed control program no later than two years before the applicable treatment compliance date in R309-215-15(13).

(B) Watershed control plan no later than one year before the applicable treatment compliance date in R309-215-15(13).

(C) Annual watershed control program status report every 12 months, beginning one year after the applicable treatment compliance date in R309-215-15(13).

(D) Watershed sanitary survey report:

(I) For community water systems, every three years beginning three years after the applicable treatment compliance date in R309-215-15(13).

(II) For noncommunity water systems, every five years beginning five years after the applicable treatment compliance date in R309-215-15(13).

(ii) Alternative source/intake management:

(A) Verification that system has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results No later than the applicable treatment compliance date in R309-215-15(13).

(iii) Presedimentation: Monthly verification of the following:

(A) Continuous basin operation

(B) Treatment of 100% of the flow

(C) Continuous addition of a coagulant

(D) At least 0.5-log mean reduction of influent turbidity or compliance with alternative Executive Secretary-approved performance criteria.

(E) Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(iv) Two-stage lime softening: Monthly verification of the following:

(A) Chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration.

(B) Both stages treated 100% of the plant flow.

(C) Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(v) Bank filtration:

(A) Initial demonstration of the following no later than the applicable treatment compliance date in R309-215-15(13).

(I) Unconsolidated, predominantly sandy aquifer

(II) Setback distance of at least 25 ft. (0.5-log credit) or 50 ft. (1.0-log credit).

(B) If monthly average of daily max turbidity is greater than 1 NTU then system must report result and submit an assessment of the cause. The report is due within 30 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(vi) Combined filter performance:

(A) Monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the 4 hour CFE measurements taken each month.

(B) Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(vii) Individual filter performance. Monthly verification of the following:

(A) Individual filter effluent (IFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter.

(B) No individual filter greater than 0.3 NTU in two consecutive readings 15 minutes apart.

(C) Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(viii) Demonstration of performance.

(A) Results from testing following a Executive Secretary approved protocol no later than the applicable treatment compliance date in R309-215-15(13).

(B) As required by the Executive Secretary, monthly verification of operation within conditions of Executive Secretary approval for demonstration of performance credit within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(ix) Bag filters and cartridge filters.

(A) Demonstration that the following criteria are met no later than the applicable treatment compliance date in R309-215-15(13).

(I) Process meets the definition of bag or cartridge filtration;

(II) Removal efficiency established through challenge testing that meets criteria in this subpart.

(B) Monthly verification that 100% of plant flow was filtered within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(x) Membrane filtration.

(A) Results of verification testing demonstrating the following no later than the applicable treatment compliance date in R309-215-15(13).

(I) Removal efficiency established through challenge testing that meets criteria in this subpart;

(II) Integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline.

(B) Monthly report summarizing the following within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(I) All direct integrity tests above the control limit;

(II) If applicable, any turbidity or alternative Executive Secretary-approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken.

(xi) Second stage filtration: Monthly verification that 100% of flow was filtered through both stages and that first stage was preceded by coagulation step within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(xii) Slow sand filtration (as secondary filter): Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100% of flow from surface water sources within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(xiii) Chlorine dioxide: Summary of CT values for each day as described in R309-215-15(19) within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(xiv) Ozone: Summary of CT values for each day as described in R309-215-15(19) within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(xv) UV:

(A) Validation test results demonstrating operating conditions that achieve required UV dose no later than the applicable treatment compliance date in R309-215-15(13).

(B) Monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose as specified in R309-215-15(19) (d) within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in R309-215-15(13).

(21) Recordkeeping requirements.

(a) Systems must keep results from the initial round of source water monitoring under R309-215-15(2)(a) and the second round of source water monitoring under R309-215-15(2)(b) until 3 years after bin classification under R309-215-15(11) for filtered systems [~~or determination of the mean Cryptosporidium level under R309-215-15(11) for unfiltered systems~~] for the particular round of monitoring.

(b) Systems must keep any notification to the Executive Secretary that they will not conduct source water monitoring due to meeting the criteria of R309-215-15(2)(d) for 3 years.

(c) Systems must keep the results of treatment monitoring associated with microbial toolbox options under R309-215-15(15) through R309-215-15(19) for 3 years.

(22) Requirements for Sanitary Surveys Performed by EPA. Requirements to respond to significant deficiencies identified in sanitary surveys performed by EPA.

(a) A sanitary survey is an onsite review of the water source (identifying sources of contamination by using results of source water assessments where available), facilities, equipment, operation, maintenance, and monitoring compliance of a PWS to evaluate the adequacy of the PWS, its sources and operations, and the distribution of safe drinking water.

(b) For the purposes of this section, a significant deficiency includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that EPA determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

(c) For sanitary surveys performed by EPA, systems must respond in writing to significant deficiencies identified in sanitary survey reports no later than 45 days after receipt of the report, indicating how and on what schedule the system will address significant deficiencies noted in the survey.

(d) Systems must correct significant deficiencies identified in sanitary survey reports according to the schedule approved by EPA, or if there is no approved schedule, according to the schedule reported under paragraph (c) of this section if such deficiencies are within the control of the system.

KEY: drinking water, surface water treatment plant monitoring, disinfection monitoring, compliance determinations
Date of Enactment or Last Substantive Amendment: March 6, 2007

Notice of Continuation: May 16, 2005
Authorizing, and Implemented or Interpreted Law: 19-4-104; 63-46b-4

R309. Environmental Quality, Drinking Water.
R309-220. Monitoring and Water Quality: Public Notification Requirements.

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R309-220-15. Standard Health Effects Language.

Microbiological Contaminants:

(1) Total Coliform. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

(2) Fecal coliform/E.Coli. Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

(3) Total organic carbon. Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acides (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

(4) Turbidity. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), Long Term 1 Enhanced Surface Water Treatment Rule (LT1) and Filter Backwash Recycling Rule (FBRR) violations.

(5) Giardia lamblia. Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

(6) Viruses. Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

(7) Heterotrophic plate count (HPC) bacteria. Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

(8) Legionella. Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

(9) Cryptosporidium. Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

. . .

KEY: drinking water, public notification, health effects
Date of Enactment or Last Substantive Amendment: March 6, 2007
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R309. Environmental Quality, Drinking Water.
R309-225. Monitoring and Water Quality: Consumer Confidence Reports.
R309-225-1. Purpose.

This rule establishes the minimum requirements for the content of annual reports that community water systems must deliver to their customers. These reports must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner.

R309-225-2. Authority.

This rule is promulgated by the Drinking Water Board as authorized by Title 19, Environmental Quality Code, Chapter 4, Safe Drinking Water Act, Subsection 104 of the Utah Code and in accordance with 63-46a of the same, known as the Administrative Rulemaking Act.

R309-225-3. Definitions.

Definitions for certain terms used in this rule are given in R309-110 but may be further clarified herein.

(1) For the purpose of R309-225, customers are defined as billing units or service connections to which water is delivered by a community water system.

(2) For the purpose of R309-225, detected means: at or above the levels prescribed by R444-14-4(2)[~~R444-14-11(2)~~].

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KEY: drinking water, consumer confidence report, water quality
Date of Enactment or Last Substantive Amendment: March 6, 2007
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